ORDER NO. AD8807199C2

Service Manual

Receiver

SA-R230

QUARTZ Synthesizer
AM/FM Stereo Receiver

Color

(K)...Black Type

Area

Color	Area
(K)	(EG)......F.R. Germany.

SPECIFICATIONS

(DIN 45 500)

■ AMPLIFIER SECTION

Power output	
DIN 1kHz	2×50W (8Ω)
40Hz~20kHz continuous power output both channels driven	2×40W (8Ω)
Total harmonic distortion	
rated power at 40Hz~20kHz	0.05% (8Ω)
half power at 1kHz	0.03% (8Ω)
Intermodulation distortion	
rated power at 60Hz: 7kHz=4:1, SMPTE, 8Ω	0.5%
Power bandwidth	
both channels driven, −3dB	10Hz~40kHz (8Ω)
Damping factor	20 (8Ω)
Input sensitivity and impedance	
PHONO	3mV/47kΩ
CD, VCR 1, TAPE/VCR 2	200mV/22kΩ
PHONO maximum input voltage (1kHz, RMS)	150mV
S/N	
rated power (8Ω)	
PHONO	70dB (IHF, A: 80dB)
CD, VCR 1, TAPE/VCR 2	80dB (IHF, A: 90dB)
Frequency response	
PHONO	RIAA standard curve ±0.8dB (30Hz~15kHz)
CD, VCR 1, TAPE/VCR 2	7Hz~70kHz (±3dB)
5 band graphic equalizer	80Hz, −10dB~+10dB
	250Hz, −10dB~+10dB
	1kHz, −10dB~+10dB
	4kHz, −10dB~+10dB
	12.5kHz, −10dB~+10dB
Loudness control (volume at −30dB)	50Hz, +9dB
Output voltage	
VCR 1, TAPE/VCR 2 REC OUT	200mV
Channel balance, 250Hz~6,300Hz	±1dB
Channel separation	55dB
Headphones output level and impedance	430mV/330Ω
Load impedance	
MAIN or REMOTE	4Ω~16Ω
MAIN and REMOTE	8Ω~16Ω

■ FM TUNER SECTION

Frequency range	87.50~108.00MHz
Sensitivity	
S/N 30dB	1.5µV (75Ω)
S/N 26dB	1.3µV (75Ω)
S/N 20dB	1.2µV (75Ω)
IHF usable sensitivity	1.5µV (IHF '58, 75Ω)
IHF 46dB stereo quieting sensitivity	22µV/75Ω
Total harmonic distortion	
MONO	0.2%
STEREO	0.3%
S/N	
MONO	60dB (75dB, IHF)
STEREO	58dB (71dB, IHF)
Frequency response	20Hz~15kHz, +1dB~−2dB
Alternate channel selectivity	±400kHz, 65dB
Capture ratio	1.0dB
Image rejection at 98MHz	40dB
IF rejection at 98MHz	70dB
Spurious response rejection at 98MHz	70dB

Technics

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

AM suppression	50dB
Stereo separation 1kHz	40dB
10kHz	30dB
Carrier leak 19kHz	−60dB (−65dB, IHF)
38kHz	−70dB (−75dB, IHF)
Channel balance (250Hz~6,300Hz)	±1.5dB
Limiting point	1.2μV
Bandwidth	
IF amplifier	180kHz
FM demodulator	1000kHz
Antenna terminals	75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	522~1611kHz (9kHz-steps) 530~1620kHz (10kHz-steps)
Sensitivity (S/N 20dB)	20μV, 330μV/m
Selectivity at 999kHz	55dB
Image rejection at 999kHz	40dB
IF rejection at 999kHz	55dB

■ GENERAL

Power consumption	330W
Power supply	AC 50Hz/60Hz, 220V
Dimensions (W×H×D)	430×102×290mm (16-15/16″×4″×11-1/4″)
Weight	6.0kg (13.2lb.)

Notes:

1. Specifications are subject to change without notice. Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

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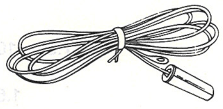
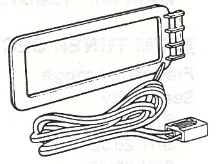
■ ACCESSORIES

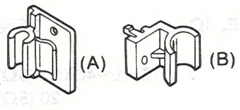
- FM indoor antenna (1)
(SSA270M)



- AM loop antenna (1)
(SPB1162T)

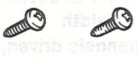


- AM antenna holders (2)



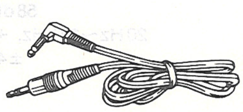
(SMA233-1M) (SMA231M)

- Screws (2)

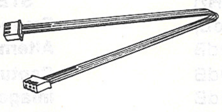


(XTN3+10AFZ)

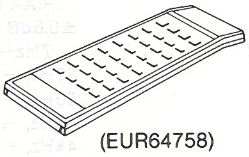
- Connection cable for remote-control (1)
(SJP2257T)



- Flat cable for remote-control (1)
(SWKST11M-1)

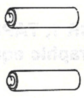


- Remote-control transmitter (1)



(EUR64758)

- Batteries (2)
(UM-4NE/2S)



LOCATION OF CONTROLS

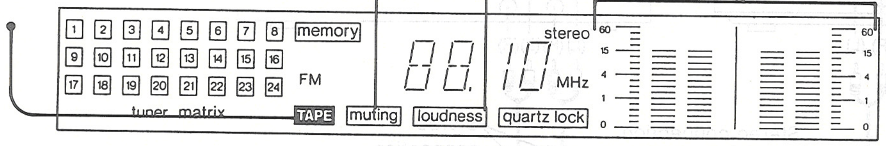
Amplifier section

Muting indicator (muting)
This indicator will illuminate when the muting button (on the remote-control transmitter only) is pressed.
To cancel the muting function without using the remote-control transmitter, press and hold the "phono" input selector of this unit.

Loudness indicator (loudness)

Peak-power indicators (power level)
These indicators indicate the peak power value of the output level to the speaker systems.

Tape indicator (TAPE)


memory
stereo
FM
88.10 MHz
tuner matrix
TAPE
muting
loudness
quartz lock

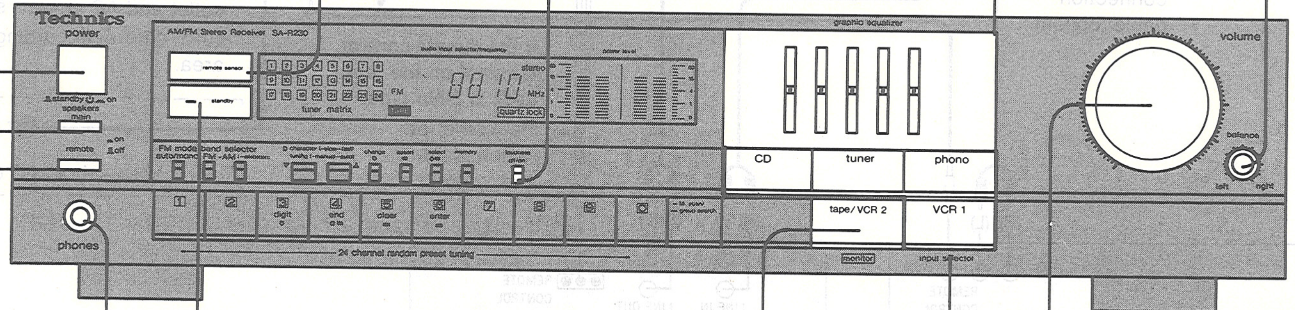
Power "standby ⏻, on" switch (power "standby ⏻, on")
This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the "standby ⏻" position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

Equalizer controls (graphic equalizer)
These controls are used to adjust the levels within each frequency band. The levels can be varied continuously over a range of +10 dB~−10 dB. By sliding the controls at each of the indicated frequencies in the "+" direction, the frequencies in that band are boosted, and by sliding them in the "−" direction, the frequencies in that band are attenuated.
When the power switch is set to the "on" position, the tips of these level controls will illuminate.

Remote-control signal sensor (remote sensor)

Loudness switch (loudness)
Set to the "on" position (The loudness indicator will illuminate.) when listening to music at low volume. Auditory perception of sound in the low frequency range falls off at low volume but when the switch is in this position, this deficiency is compensated for, so that the full impact of the musical performance can be enjoyed.

Balance control (balance)


Technics
power
AM/FM Stereo Receiver SA-R230
graphic equalizer
volume
balance
CD
tuner
phono
tape/VCR 2
VCR 1
phones
monitor
input selector
24 channel random preset tuning

"standby ⏻" indicator
This indicator will illuminate when the unit is switched to the standby condition by the power "standby ⏻/on" switch on the unit or the ON/OFF switch on the remote-control transmitter.

Volume-control/indicator (volume)
The indicator will move in accordance with the volume level.

Headphones jack (phones)

Speaker selectors (speakers)
These selectors are used to switch the speaker systems ON and OFF.

Tape-monitor switch (monitor)
Press this button to listen to tape.
No other sources selected by the input selector can be heard while the tape indicator is illuminated. To listen to some other source, press this button once again.

Input selectors (input selector)
These selectors are used to select the sound source to be heard, such as a disc, radio broadcast, etc.
The selected sound is shown on the audio input selector/frequency display.

Tuner section

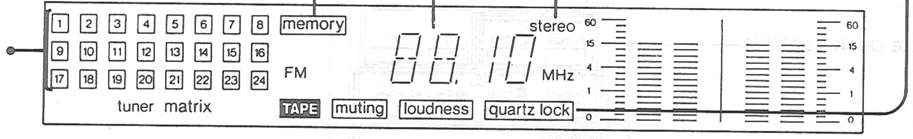
Audio input selector/frequency display (audio input selector/frequency)

Memory indicator (memory)
This indicator illuminates when the memory button is pressed.

FM stereo indicator (stereo)
This indicator automatically illuminates when an FM stereo broadcast is being received.
Note: It will not illuminate if the FM mode selector is pressed.

Quartz-lock indicator (quartz lock)
This indicator illuminates when tuned precisely to an FM or AM station.

Preset channel matrix display (tuner matrix)


memory
stereo
FM
88.10 MHz
tuner matrix
TAPE
muting
loudness
quartz lock

FM mode selector (FM mode)
This unit automatically switches to the stereo mode when a stereo broadcast is received. Press this selector to listen in the monaural mode. The stereo indicator will not illuminate in the monaural mode.

Memory button (memory)
This button is used when preset memory setting of the preset-tuning buttons is made.

Group select button (select)

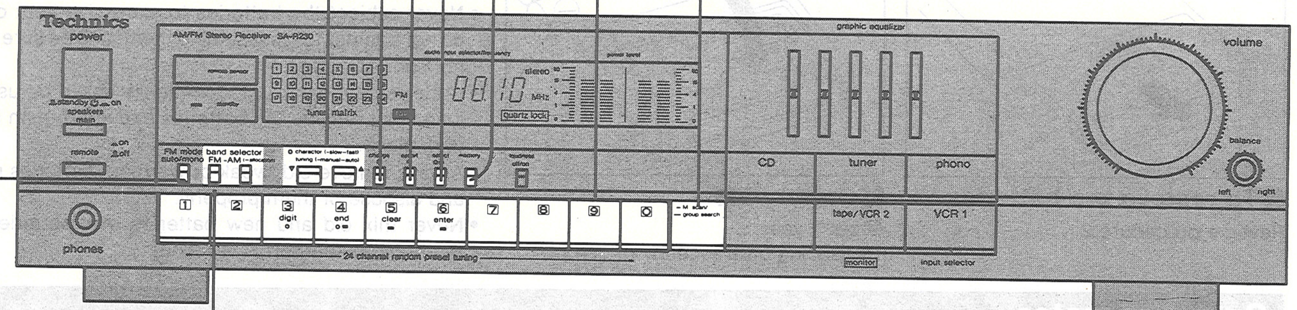
Assort-mode select button (assort)

Change-mode select button (change)

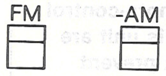
Character-input/tuning buttons (character/tuning)

Preset tuning buttons (1 ~ 0) (24 channel random preset tuning)
These buttons are used to preset FM and AM broadcast frequencies into the memory of this unit, and are also pressed to select the desired preset frequencies.
Note:
The buttons marked $\boxed{3}$ ~ $\boxed{6}$ are also used to listen to radio broadcasts arranged in convenient groups.

Memory-scan/group-search button (-M. scan/–group search)

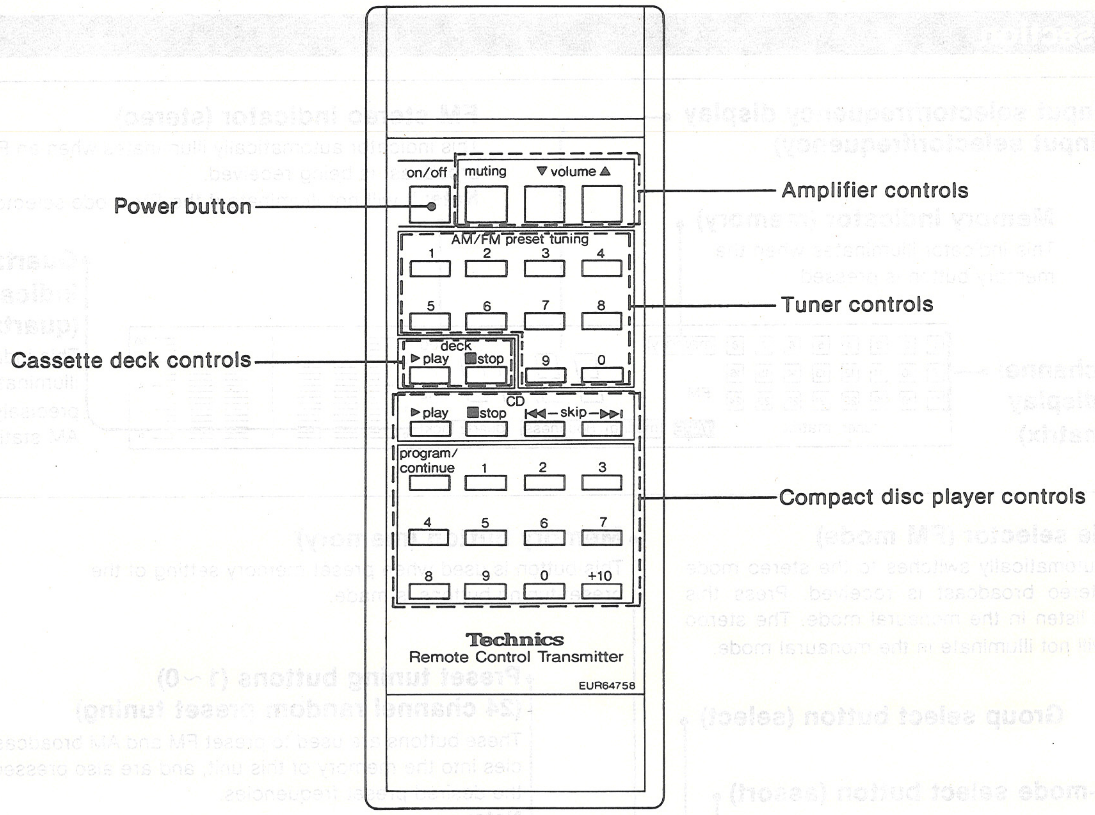

Technics
power
AM/FM Stereo Receiver SA-R230
graphic equalizer
volume
balance
CD
tuner
phono
tape/VCR 2
VCR 1
phones
monitor
input selector
24 channel random preset tuning

Band selectors (band selector)



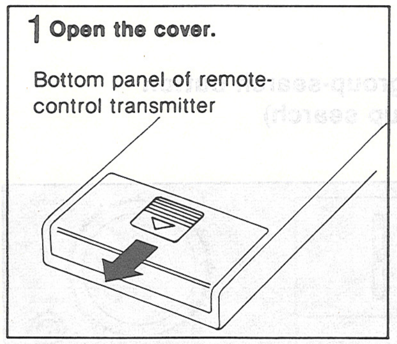
FM: Press this button to listen to an FM broadcast.
AM: Press this button to listen to an AM broadcast.
allocation:
When the AM button is pressed for about 4 seconds, the AM frequency step will change to 10 kHz per step. (This step is set to 9 kHz before shipment.) In order to return to the original frequency indication, press this button for about 4 seconds again.

• Remote-control transmitter (EUR64758)


Power button
Amplifier controls
Tuner controls
Cassette deck controls
Compact disc player controls
on/off
muting
▼volume▲
AM/FM preset tuning
1
2
3
4
5
6
7
8
deck
▶play
■stop
9
0
CD
▶play
■stop
|◀◀–skip–▶▶|
program/continue
1
2
3
4
5
6
7
8
9
0
+10
Technics
Remote Control Transmitter
EUR64758

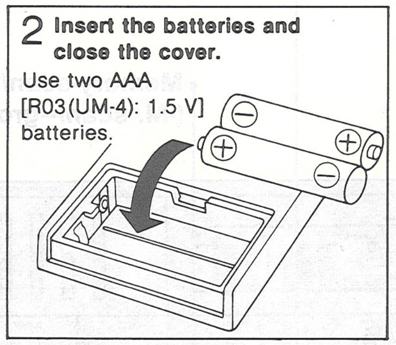
Insertion of remote-control transmitter batteries

1 Open the cover.


Bottom panel of remote-control transmitter

2 Insert the batteries and close the cover.

Use two AAA [R03(UM-4): 1.5 V] batteries.



■To remove the batteries

Reverse procedure 2.

■Battery life

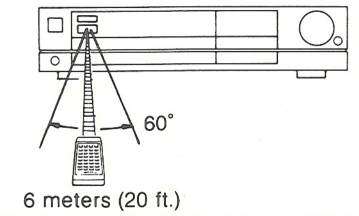
About 1 year.
(Depending on frequency of use.)

■Notes concerning use of dry batteries

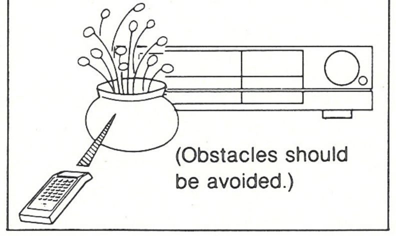
- Do not use chargeable batteries (Ni-Cd type).
- Be sure the batteries are inserted so that the positive (+) and negative (−) polarities are correct. Batteries installed with incorrect polarities may leak and damage the remote-control transmitter.
- Never subject the batteries to excessive heat or flame; do not attempt to disassemble them; and be sure they are not short-circuited.
- If the remote-control transmitter is not to be used for a long time, remove the batteries and store them in a cool dark place.
- Always remove old, weak or worn-out batteries promptly and dispose of them properly.
- Never mix old and new batteries, nor batteries of different types (carbon or alkaline).

Operation notes

Use the remote-control transmitter within 6 meters.

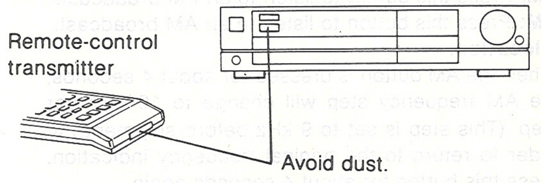

60°
6 meters (20 ft.)

Face it toward the remote-control signal sensor.



(Obstacles should be avoided.)

Be sure the transmitter part of the remote-control transmitter and the sensor part of this unit are free from dust. Excessive dust might prevent reception.


Remote-control transmitter
Avoid dust.

Notes: 1. The control panel of the remote-control transmitter may be covered by a clear plastic protective sheet. This sheet may be removed if desired.

2. If this unit is placed in an audio rack, the distance that the remote control transmitter can be used from might be reduced due to the thickness or color of the glass door.

■ CONNECTIONS

• Connections to equipment

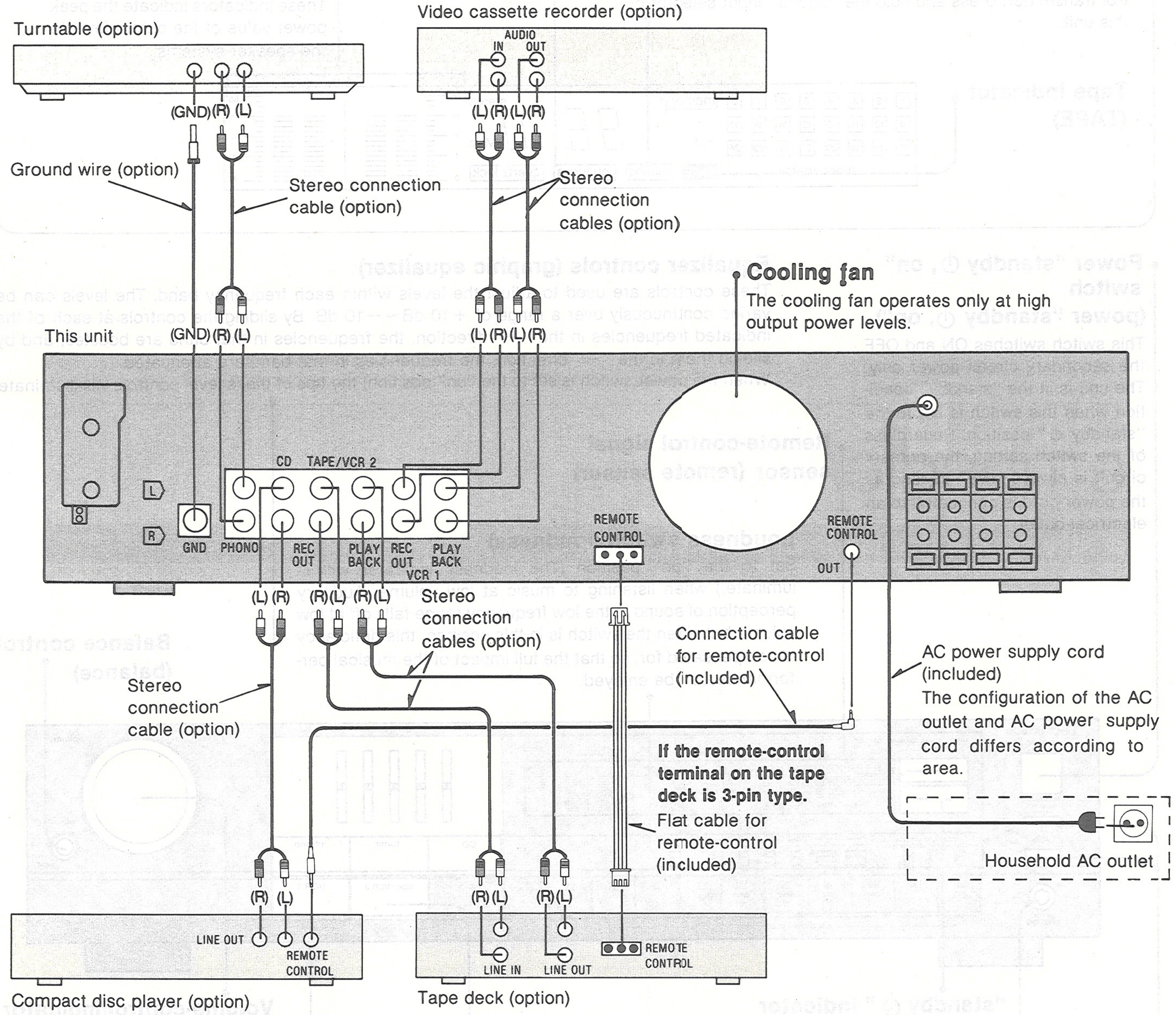
"PHONO" terminals

Connect a turntable.

Note:
For remote-control operation, be sure to connect the ground wire correctly.

"VCR 1" terminals

Connect a video cassette recorder or an audio tape deck etc. (Refer to the operating instructions of VCR, etc.)


Turntable (option)
(GND)(R)(L)
Ground wire (option)
Stereo connection cable (option)
Video cassette recorder (option)
AUDIO
IN
OUT
(L)(R)(L)(R)
Stereo connection cables (option)
This unit
(GND)(R)(L)
(L)(R)(L)(R)
L
R
GND
PHONO
CD
TAPE/VCR 2
REC OUT
PLAY BACK
REC OUT
PLAY BACK
VCR 1
REMOTE CONTROL
REMOTE CONTROL
OUT
(L)(R)
(R)(L)
(R)(L)
Stereo connection cables (option)
Stereo connection cable (option)
Connection cable for remote-control (included)
AC power supply cord (included)
Household AC outlet
(R)
(L)
LINE OUT
REMOTE CONTROL
Compact disc player (option)
(R)(L)
(R)(L)
LINE IN
LINE OUT
REMOTE CONTROL
Tape deck (option)

Cooling fan
The cooling fan operates only at high output power levels.

The configuration of the AC outlet and AC power supply cord differs according to area.

If the remote-control terminal on the tape deck is 3-pin type.
Flat cable for remote-control (included)

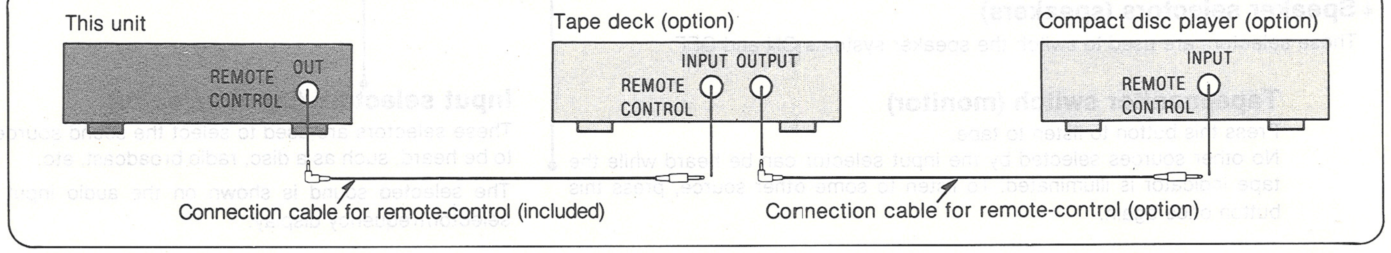
"CD" terminals

Connect a compact disc player.

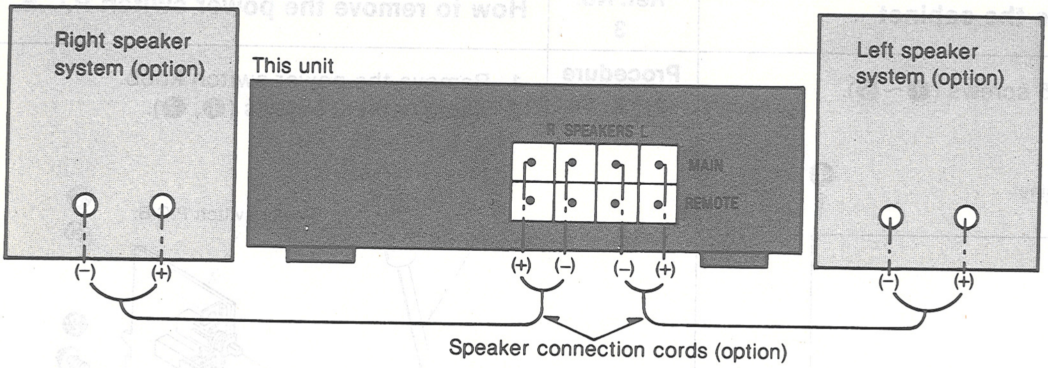
"TAPE/VCR 2" terminals

Connect a tape deck or second VCR.

If the remote control terminal on the tape deck is 1/8 inch stereo mini-jack.


This unit
REMOTE CONTROL
OUT
Tape deck (option)
INPUT
OUTPUT
REMOTE CONTROL
Compact disc player (option)
INPUT
REMOTE CONTROL
Connection cable for remote-control (included)
Connection cable for remote-control (option)

• Connections to speakers

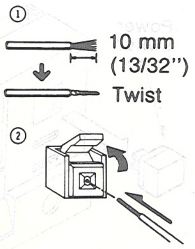

Right speaker system (option)
This unit
R SPEAKERS L
MAIN
REMOTE
Left speaker system (option)
(−)
(+)
(+)
(−)
(−)
(+)
(−)
(+)
Speaker connection cords (option)

■ Load impedance:
MAIN or REMOTE: 4∼16 Ω
MAIN and REMOTE: 8∼16 Ω

■ "REMOTE" terminals
For connection to a second pair of speakers.

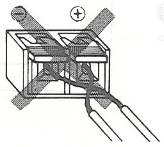
Connection of speaker wires

① Twist the core of the speaker wires.
② Lift up the lever, and insert the core until it can no longer be seen.
③ Press down the lever, and pull the cord gently to be sure that it is secure.



Notes:

1. To prevent damage to circuitry, never short-circuit positive (+) and negative (−) speaker terminals.
2. Be sure to only connect positive (+) cords to positive (+) terminals, and negative (−) cords to negative (−) terminals.
3. Connections of speaker wires should be made before connecting the AC power supply cords.



■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlines below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again after one minute.

Note:

When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

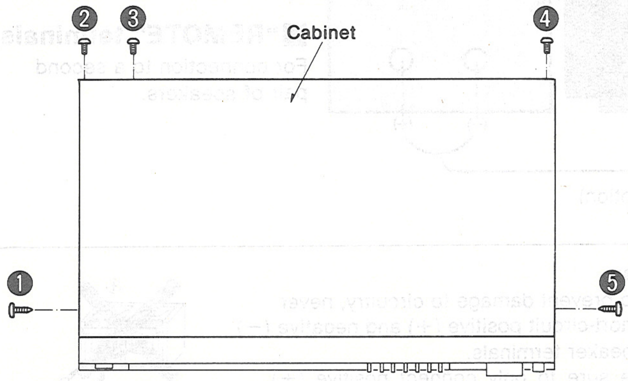
■ BEFORE REPAIR AND ADJUSTMENT

1. Turn off the power, discharge both power supply capacitors (C701, C702 6800μF) through a 10Ω 5W resistor to ground. Do not short between C701 and C702. It may damage the capacitors.
2. After completion of repair, slowly apply the primary voltage by using a variac to avoid over current. Current consumption at 50Hz/60Hz in no signal mode should by shown with respect to supply voltage 220V.

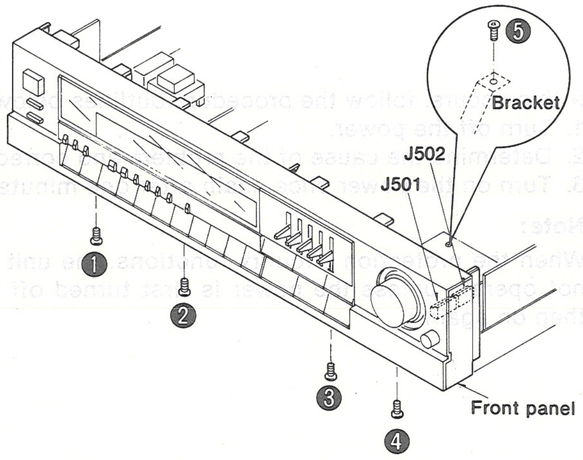
Power supply voltage		AC 220V
Consumed current	50/60Hz	220∼420mA

DISASSEMBLY INSTRUCTIONS

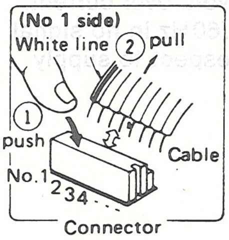
Ref. No. 1	**How to remove the cabinet**
Procedure 1	1. Remove the 5 screws (❶~❺).


❷
❸
Cabinet
❹
❶
❺

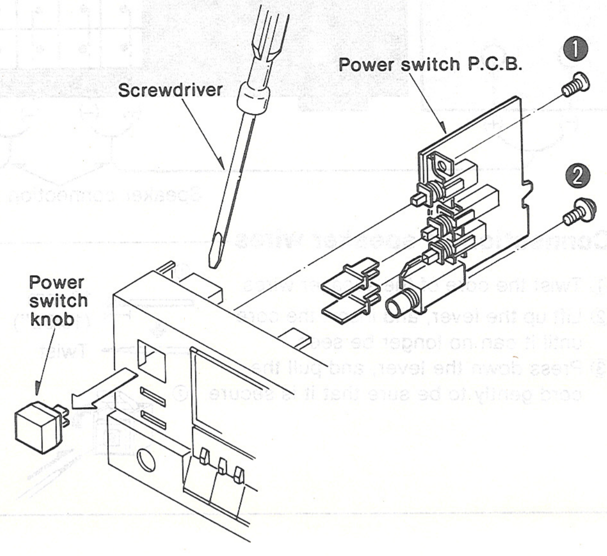
Ref. No. 2	**How to remove the front panel**
Procedure 1→2	1. Remove the 4 screws (❶~❺). 2. Remove the flat cables (J501 and J502).


❺
Bracket
J502
J501
❶
❷
❸
❹
Front panel

Removing the flat cable

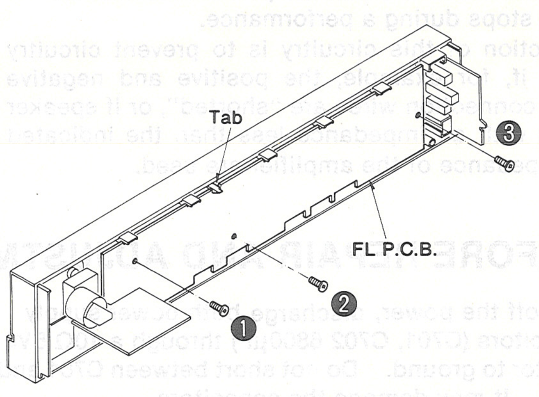

(No 1 side)
White line
② pull
① push
Cable
No.1 2 3 4 . . .
Connector

Ref. No. 3	**How to remove the power switch P.C.B.**
Procedure 1→2→3	1. Remove the power switch knob. 2. Remove the 2 screws (❶, ❷).

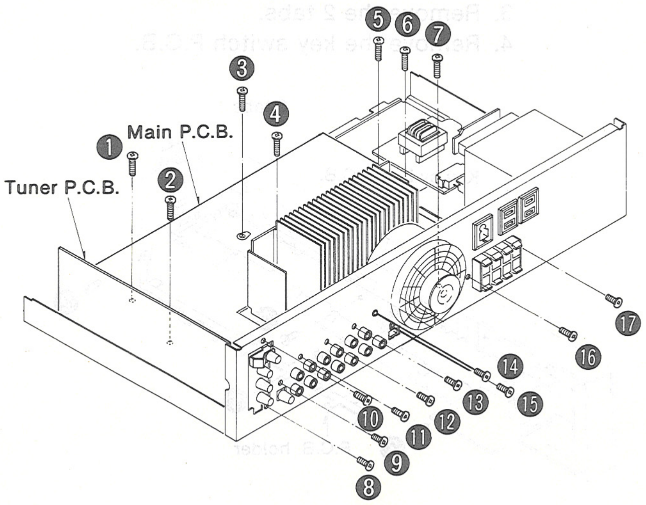

❶
Power switch P.C.B.
Screwdriver
❷
Power switch knob

Note: Remove the knob by pushing it from behind the panel.

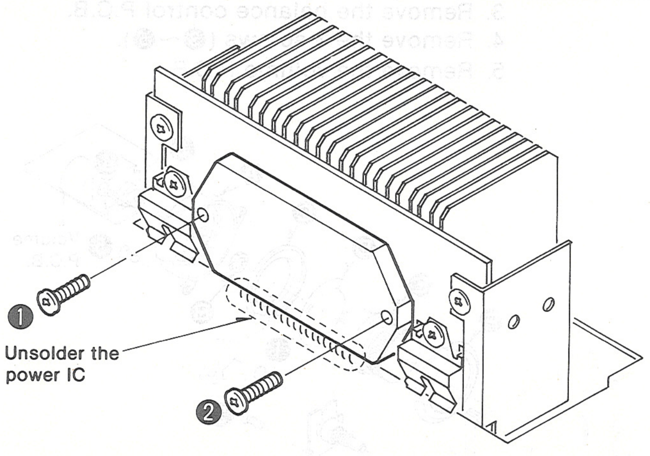
Ref. No. 4	**How to remove the FL P.C.B.**
Procedure 1→2→4	1. Remove the 3 screws (❶~❸). 2. Release the tab.


Tab
❸
FL P.C.B.
❷
❶

Ref. No. 5	**How to remove the tuner P.C.B. and main P.C.B.**
Procedure 1→2→5	1. Remove the 17 screws (❶~⓱). 2. Remove the tuner P.C.B. and main P.C.B.


❺
❻
❼
❸
❹
Main P.C.B.
❶
Tuner P.C.B.
❷
⓱
⓰
⓮
⓯
⓭
⓬
❿
⓫
❾
❽

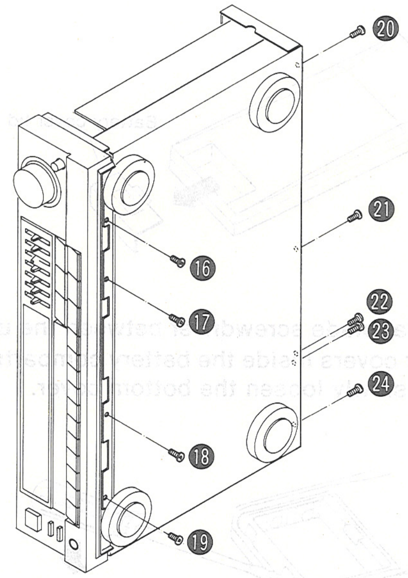
Ref. No. 6	**How to remove the power IC**
Procedure 1→2→5→6	1. Unsolder the power IC. 2. Remove the 2 screws (❶, ❷).


❶
Unsolder the power IC
❷

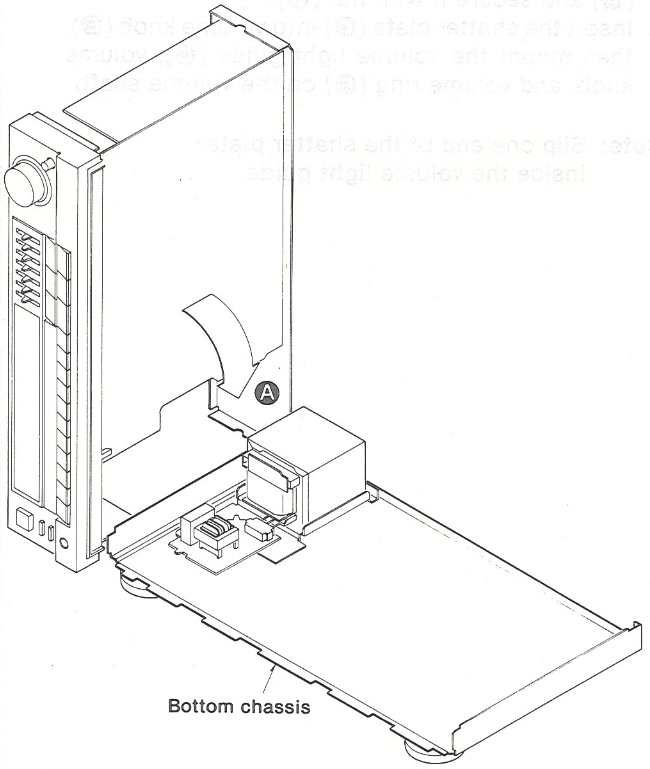
Note: When mounting the power IC, apply silicon terminal compound (SZZ0L15) to the rear of the power IC.

How to check the main P.C.B.

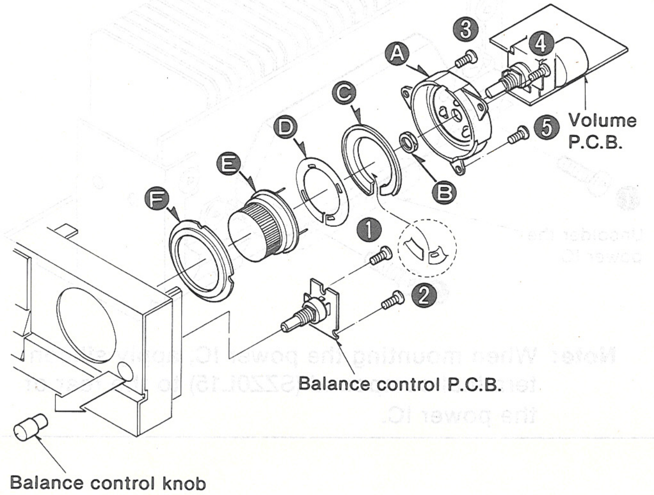
1. Remove the 7 screws (❶~❼) in above figure.
2. Remove the 9 screws (⓰~㉔).



3. Remove the bottom chassis in the direction of the arrow (Ⓐ).


Ⓐ
Bottom chassis

Ref. No. 7	How to remove the balance control P.C.B. and volume P.C.B.
Procedure 1→2→4→7	1. Remove the balance control knob. 2. Remove the 2 screws (❶, ❷). 3. Remove the balance control P.C.B. 4. Remove the 3 screws (❸~❺). 5. Remove the volume P.C.B.

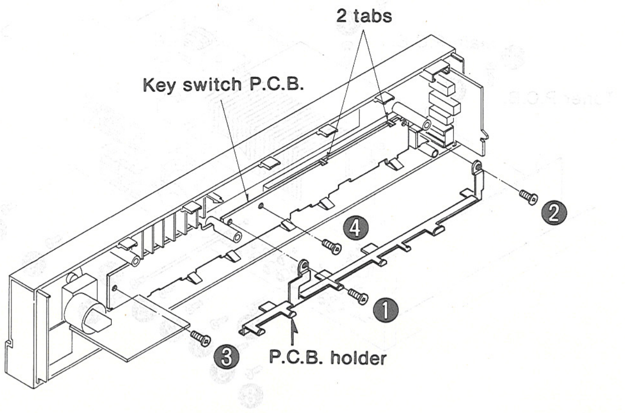

❸
Ⓐ
❹
Ⓒ
Volume P.C.B.
❺
Ⓓ
Ⓔ
Ⓑ
Ⓕ
❶
❷
Balance control P.C.B.
Balance control knob

Mounting main volume control

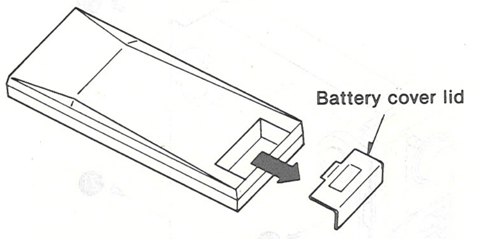
1. Insert the motor volume shaft into volume base (Ⓐ) and secure it with nut (Ⓑ).
2. Insert the shatter plate (Ⓓ) into volume knob (Ⓔ), then mount the volume light guide (Ⓒ), volume knob, and volume ring (Ⓕ) on the volume shaft.

Note: Slip one end of the shatter plate inside the volume light guide.

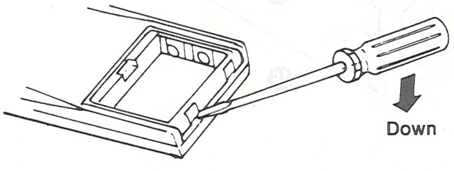
Ref. No. 8	How to remove the key switch P.C.B.
Procedure 1→2→4→8	1. Remove the 2 screws (❶, ❷), and remove the P.C.B. holder. 2. Remove the 2 screws (❸, ❹). 3. Remove the 2 tabs. 4. Remove the key switch P.C.B.


2 tabs
Key switch P.C.B.
❷
❹
❶
❸
P.C.B. holder

Ref. No. 9	How to disassemble the remote control
Procedure 9	1. Remove the Battery cover lid.


Battery cover lid

2. Insert a flat blade screwdriver between the upper and lower covers inside the battery compartment and then slowly loosen the bottom cover.



MEASUREMENTS AND ADJUSTMENTS

FM

Control positions and equipment used

- FM signal generator (AM and FM-SG).
- Stereo modulator
- Distortion analyser
- Oscilloscope
- AC and DC electronic voltmeter (EVM)
- Frequency counter
- Resistor (100kΩ)

Note: For Z201, Z202, Z321, L321, L322 and L324, adjusted parts are supplied. So, do not turn the cores of these parts.

FM MONO DISTORTION ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the radio to "**FM**" position.
3. Set the radio frequency display and signal generator to **100.10 MHz.**
4. Adjust **T201** core so that voltage measured in signal mode is **0 mV** (0±20 mV) in **300 mV** range.
5. Adjust **T202** so that the distortion factor of Lch is minimized.
6. Repeat steps 4 and 5 a few times.
7. Make sure that the distortion factors of Lch and Rch are nearly the same with each other to minimum.

Note:

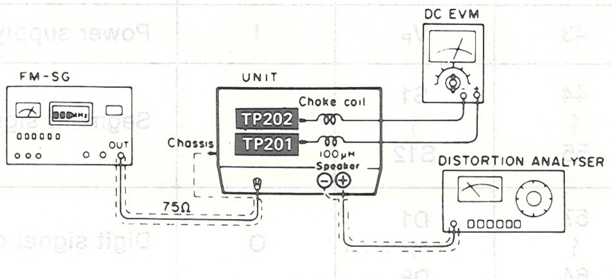
The adjusting screwdriver used should be made of resin.

FM SIGNAL GENERATOR CONDITION

Modulation........................100%

Modulation frequency.......1kHz (MONO)

Output level........................66dB


DC EVM
FM-SG
UNIT
Choke coil
TP202
TP201
Chassis
100µH
Speaker
OUT
75Ω
DISTORTION ANALYSER

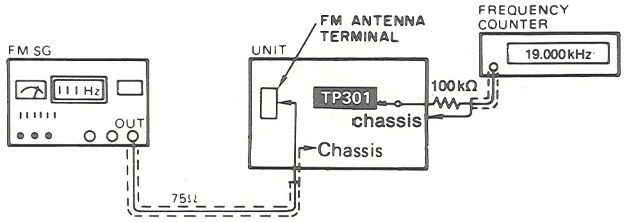
MPX VCO ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "**FM auto**" position.
3. Place the radio frequency display and signal generator to **100.10 MHz.**
4. Adjust **VR301** for **19.00±0.03 kHz** on frequency counter reading.

FM SIGNAL GENERATOR CONDITION

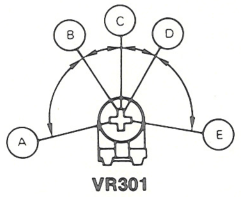
Modulation........................0% (non-modulation)

Output level........................66dB


FM SG
OUT
UNIT
FM ANTENNA TERMINAL
FREQUENCY COUNTER
19.000kHz
TP301
100kΩ
chassis
Chassis
75Ω

★USING ALTERNATE SYSTEM

1. Apply stereo signal from generator or receive the stereo broadcast.
2. Adjust **VR301** until stereo indicator lights up. Cement arm of **VR301** as shown in figure.


A
B
C
D
E
VR301

Ⓐ – Ⓑ Ⓓ – Ⓔ : Stereo OFF position

Ⓑ – Ⓓ : Stereo ON position (indicator lighting)

Ⓒ : Adjust point of Pilot circuit

FM STEREO SEPARATION ADJUSTMENT

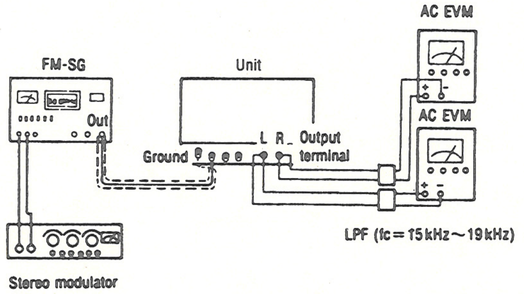
1. Test equipment connection is shown in figure.
2. Set the unit to "**FM**" mode.
3. Set the radio frequency display and signal generator to **100.10MHz.**
4. Adjust **VR302** so that the R-CH output is minimized when stereo modulator is in "L"(L-CH modulation) mode.

FM SIGNAL GENERATOR CONDITION

Modulation..............................Stereo "L" mode or "R" mode 90%, Pilot 10%

Modulation frequency...........1kHz (Pilot 19kHz)

Output level............................66dB


AC EVM
FM-SG
Unit
Out
L
R
Output terminal
Ground
AC EVM
LPF (fc=15kHz~19kHz)
Stereo modulator

FM STEREO DISTORTION ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "**FM**" mode.
3. Set the radio frequency display and signal generator to **100.10 MHz.**
4. Adjust L1 so that the distortion factor of L-CH is minimized.
5. Make sure that the distortion factors of L-CH and R-CH are nearly the same with each other to minimum.

Notes:

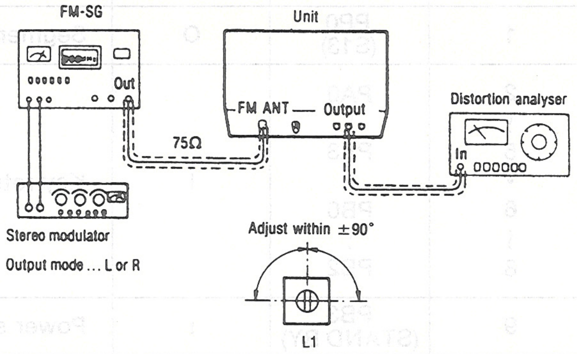
1. The adjusting screwdriver used should be made of resin.
2. L1 should be rotated no more 1/4 turn (90 deg.) on either side.

FM SIGNAL GENERATOR CONDITION

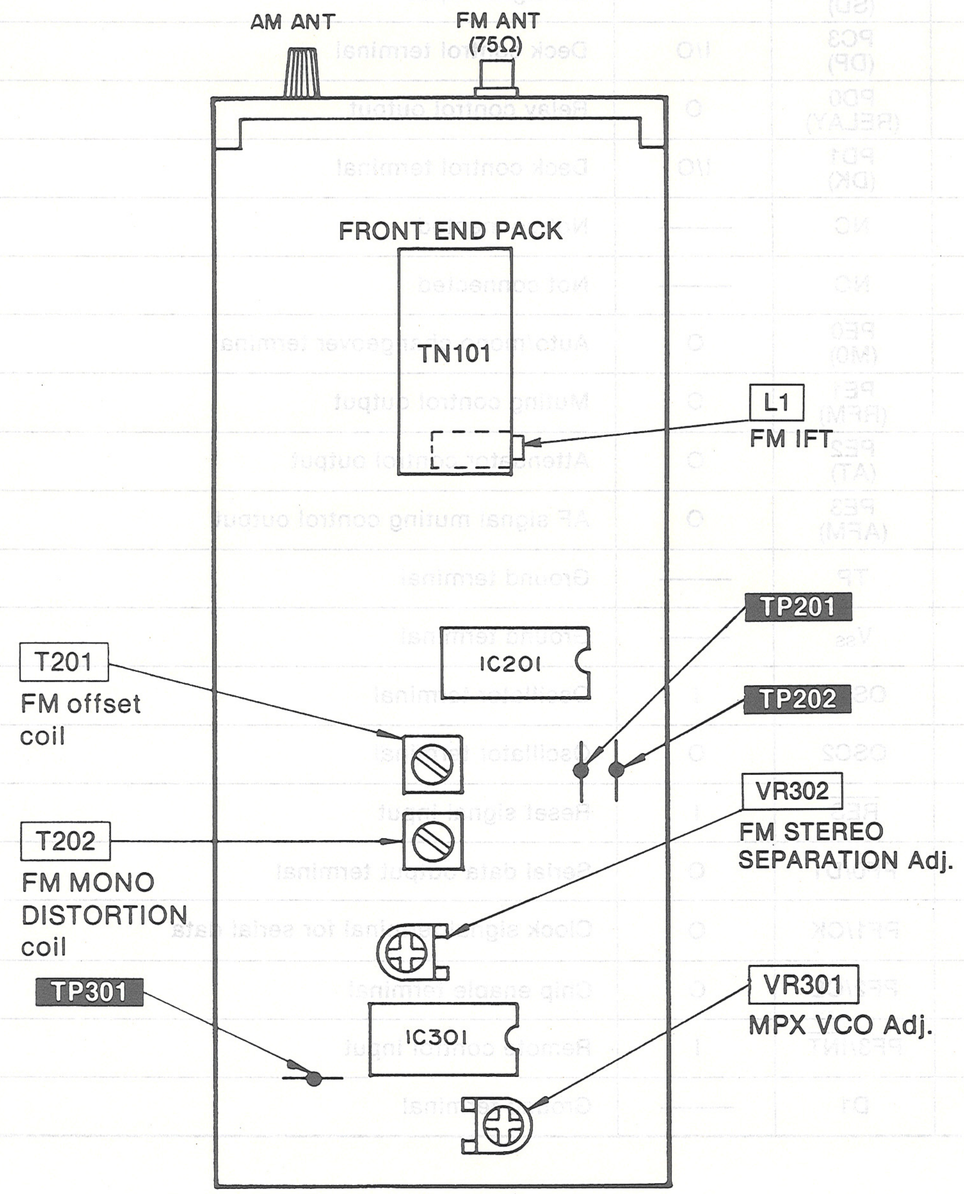
Modulation..............................Stereo "L" mode or "R" mode 45%, Pilot 10%

Modulation frequency...........1kHz (Pilot 19kHz)

Output level............................66dB


FM-SG
Out
Unit
FM ANT
Output
75Ω
Distortion analyser
In
Stereo modulator
Output mode ... L or R
Adjust within ±90°
L1

- **Adjustment points**


AM ANT
FM ANT (75Ω)
FRONT END PACK
TN101
L1
FM IFT
TP201
IC201
T201
FM offset coil
TP202
VR302
FM STEREO SEPARATION Adj.
T202
FM MONO DISTORTION coil
TP301
IC301
VR301
MPX VCO Adj.

FUNCTION OF TERMINAL

• IC901 (LC6554H3682): microcomputer

PIN NO.	MARK	I/O	DESCRIPTION OF TERMINAL
1	PP0 (S13)	O	Segment signal output
2 ~ 5 • 6 ~ 8	PA0 ~ PA3 • PB0 ~ PB2	I	Key return signal input
9	PB3 (STAND BY)	I	Power supply terminal
10	PC0 (OFF)	I	Power ON/OFF input
11	PC1 (STEREO)	I	Stereo signal input
12	PC2 (SD)	I	SD signal input
13	PC3 (DP)	I/O	Deck control terminal
14	PD0 (RELAY)	O	Relay control output
15	PD1 (DK)	I/O	Deck control terminal
16	NC	—	Not connected
17	NC	—	Not connected
18	PE0 (M0)	O	Auto/mono changeover terminal
19	PE1 (RFM)	O	Muting control output
20	PE2 (AT)	O	Attenuator control output
21	PE3 (AFM)	O	AF signal muting control output
22	TP	—	Ground terminal
23	V_{SS}	—	Ground terminal
24	OSC1	I	Oscillator terminal
25	OSC2	O	Oscillator terminal
26	$\overline{RES}$	I	Reset signal input
27	PF0/D1	O	Serial data output terminal
28	PF1/CK	O	Clock signal terminal for serial data
29	PF2/CE	O	Chip enable terminal
30	PF3/$\overline{INT}$	I	Remote control input
31	D1	—	Ground terminal
32	PG1 (CK)	—	Ground terminal
33	PG2 (ST)	O	Control signal terminal for IC401 (TC9163N)
34 ~ 37	NC	—	Not connected
38	PI3 (LOUDNESS)	O	Loudness control output
39 • 40	PJ0 (R) • PJ1 (F)	O	Volume motor drive output
41 • 42	NC	—	Not connected
43	V_P	I	Power supply terminal (negative voltage)
44 ~ 55	S1 ~ S12	O	Segment signal output
57 ~ 64	D1 ~ D8	O	Digit signal output and key scan signal output
56	V_{DD}	I	Power supply terminal (positive voltage)

RESISTORS & CAPACITORS

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Numbering System For Resistors

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)

ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Numbering System For Capacitors

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001μF)	Tolerance	Unique

ECEA	50	M	330
Type	Voltage (50V)	Characteristics	Value (33μF)

- ● Capacitance values is in microfarads (μF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
- ● Resistance values is in ohms (Ω), unless specified otherwise, 1K = 1,000Ω, 1M = 1,000kΩ

Resistor Type	Wattage		Tolerance
ERD : Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG : Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ : Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX : Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L : Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K : Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC : Solid	6G : 1/10W	8G : 1/8W	
ERF : Incombustible Box-Shaped			
ERM : Wire-Wound			
RRJ : Chip Resistor			
ERJ : Chip Resistor			

Capacitor Type	Voltage		Tolerance
ECE : Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD : Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD : Ceramic Capacitor	1H : 50V	1V : 35V	Z : +80 −20 %
ECQM : Polyester	50 : 50V	05 : 50V	
ECQP : Polypropylene	2H : 500V	2A : 100V	J : ±5%
ECG : Ceramic	1 : 100V	1J : 63V	G : ±2%
ECEA N : Non Polar Electrolytic	KC : 400V AC		F : ±1%
QCU : Ceramic (Chip Type)	KC : 125V AC		C : ±0.25pF
ECUX : Ceramic (Chip Type)	(UL)		D : ±0.5pF
ECF : Semiconductor			
EECW : Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R101	ERDS2TJ103	10K 1/4
R102	ERDS2TJ103	10K 1/4
R104	ERDS2TJ102	1K 1/4
R105	ERDS2TJ561	560 1/4
R106	ERDS2TJ562	5.6K 1/4
R107	ERDS2TJ103	10K 1/4
R108	ERDS2TJ151	150 1/4
R201	ERDS2TJ332	3.3K 1/4
R202	ERDS2TJ474	470K 1/4
R203	ERDS2TJ122	1.2K 1/4
R204	ERDS2TJ824	820K 1/4
R205	ERDS2TJ391	390 1/4
R206	ERDS2TJ221	220 1/4
R207	ERDS2TJ822	8.2K 1/4
R208	ERDS2TJ102	1K 1/4
R209	ERDS2TJ471	470 1/4
R210	ERDS2TJ332	3.3K 1/4
R211	ERDS2TJ222	2.2K 1/4
R212	ERDS2TJ153	15K 1/4
R213	ERDS2TJ104	100K 1/4
R214	ERDS2TJ824	820K 1/4
R215	ERDS2TJ822	8.2K 1/4
R216	ERDS2TJ563	56K 1/4
R217	ERDS2TJ223	22K 1/4
R218	ERDS2TJ123	12K 1/4
R219	ERDS2TJ562	5.6K 1/4
R220	ERDS2TJ103	10K 1/4
R221	ERDS2TJ104	100K 1/4
R222	ERDS2TJ473	47K 1/4
R223	ERDS2TJ154	150K 1/4
R227	ERDS2TJ104	100K 1/4
R228	ERDS2TJ123	12K 1/4
R229	ERDS2TJ102	1K 1/4
R230	ERDS2TJ104	100K 1/4
R231	ERDS2TJ391	390 1/4
R232	ERDS2TJ122	1.2K 1/4
R233	ERDS2TJ684	680K 1/4
R234	ERDS2TJ103	10K 1/4
R235	ERDS2TJ471	470 1/4
R240	ERDS2TJ152	1.5K 1/4
R247	ERDS2TJ103	10K 1/4
R262	ERDS2TJ332	3.3K 1/4
R301	ERDS2TJ393	39K 1/4
R302	ERDS2TJ151	150 1/4
R303	ERDS2TJ223	22K 1/4
R304	ERDS2TJ223	22K 1/4
R305	ERDS2TJ272	2.7K 1/4
R306	ERDS2TJ272	2.7K 1/4
R307	ERDS2TJ562	5.6K 1/4
R308	ERDS2TJ562	5.6K 1/4
R309	ERDS2TJ224	220K 1/4
R311	ERDS2TJ102	1K 1/4
R312	ERDS2TJ153	15K 1/4
R313	ERDS2TJ473	47K 1/4
R314	ERDS2TJ473	47K 1/4
R315	ERDS2TJ103	10K 1/4
R316	ERDS2TJ103	10K 1/4
R317	ERDS2TJ473	47K 1/4
R321	ERDS2TJ223	22K 1/4
R322	ERDS2TJ223	22K 1/4
R325	ERDS2TJ102	1K 1/4
R326	ERDS2TJ102	1K 1/4
R327	ERDS2TJ183	18K 1/4
R401	ERDS2TJ332	3.3K 1/4
R402	ERDS2TJ332	3.3K 1/4
R403	ERDS2TJ822	8.2K 1/4
R404	ERDS2TJ822	8.2K 1/4
R405	ERDS2TJ470	47 1/4
R406	ERDS2TJ470	47 1/4
R407	ERDS2TJ104	100K 1/4
R408	ERDS2TJ104	100K 1/4
R409	ERDS2TJ103	10K 1/4
R410	ERDS2TJ103	10K 1/4
R411	ERDS2TJ104	100K 1/4
R412	ERDS2TJ104	100K 1/4
R413	ERDS2TJ102	1K 1/4
R414	ERDS2TJ102	1K 1/4
R415	ERDS2TJ104	100K 1/4
R416	ERDS2TJ104	100K 1/4
R417	ERDS2TJ104	100K 1/4
R418	ERDS2TJ104	100K 1/4
R421	ERDS2TJ332	3.3K 1/4
R451	ERDS2TJ391	390 1/4
R452	ERDS2TJ391	390 1/4
R453	ERDS2TJ224	220K 1/4
R454	ERDS2TJ224	220K 1/4
R455	ERDS2TJ563	56K 1/4
R456	ERDS2TJ563	56K 1/4
R457	ERDS2TJ271	270 1/4
R458	ERDS2TJ271	270 1/4
R459	ERDS2TJ680	68 1/4
R460	ERDS2TJ680	68 1/4
R461	ERDS2TJ184	180K 1/4
R462	ERDS2TJ184	180K 1/4
R463	ERDS2TJ123	12K 1/4
R464	ERDS2TJ123	12K 1/4
R465	ERDS2TJ563	56K 1/4
R466	ERDS2TJ563	56K 1/4
R467	ERDS2TJ102	1K 1/4
R468	ERDS2TJ102	1K 1/4
R501	ERDS2TJ222	2.2K 1/4
R502	ERDS2TJ222	2.2K 1/4
R503	ERDS2TJ103	10K 1/4
R504	ERDS2TJ103	10K 1/4
R505	ERDS2TJ104	100K 1/4
R506	ERDS2TJ104	100K 1/4
R507	ERDS2TJ562	5.6K 1/4
R508	ERDS2TJ562	5.6K 1/4
R509	ERDS2TJ563	56K 1/4
R510	ERDS2TJ563	56K 1/4
R513	ERDS2TJ104	100K 1/4
R514	ERDS2TJ104	100K 1/4
R515	ERDS2TJ122	1.2K 1/4
R516	ERDS2TJ122	1.2K 1/4
R517	ERDS2TJ563	56K 1/4
R518	ERDS2TJ563	56K 1/4
R519	ERDS2TJ563	56K 1/4
R522	ERDS2TJ223	22K 1/4
R523	ERDS2TJ223	22K 1/4
R524	ERDS2TJ223	22K 1/4
R525	ERDS2TJ332	3.3K 1/4
R526	ERDS2TJ332	3.3K 1/4
R527	ERDS2TJ333	33K 1/4
R528	ERDS2TJ563	56K 1/4

Ref. No.	Part No.	Value.
R530	ERDS2TJ333	33K 1/4
R531	ERDS2TJ153	15K 1/4
R532	ERDS2TJ153	15K 1/4
R541	ERDS2TJ331	330 1/4
R542	ERDS2TJ331	330 1/4
R553	ERDS2TJ472	4.7K 1/4
R554	ERDS2TJ472	4.7K 1/4
R567	ERDS2TJ331	330 1/4
R601	ERDS2TJ272	2.7K 1/4
R602	ERDS2TJ272	2.7K 1/4
R603	ERDS2TJ563	56K 1/4
R604	ERDS2TJ563	56K 1/4
R605	ERDS2TJ182	1.8K 1/4
R606	ERDS2TJ182	1.8K 1/4
R607	ERDS2TJ563	56K 1/4
R608	ERDS2TJ563	56K 1/4
R609	ERDS2TJ470	47 1/4
R610	ERDS2TJ470	47 1/4
R611 ⚠	ERD25FJ100	10 1/4
R612 ⚠	ERD25FJ100	10 1/4
R613	ERDS2TJ223	22K 1/4
R614 ⚠	ERD25FJ470	47 1/4
R615	ERDS2TJ473	47K 1/4
R616 ⚠	ERDS1FJ151	150 1/2
R617 ⚠	ERDS1FJ151	150 1/2
R618 ⚠	ERDS1FJ151	150 1/2
R619 ⚠	ERG2ANJ331	330 2
R620 ⚠	ERG2ANJ331	330 2
R621	ERDS2TJ222	2.2K 1/4
R622	ERDS2TJ222	2.2K 1/4
R623	ERDS2TJ684	680K 1/4
R624	ERDS2TJ104	100K 1/4
R625	ERDS2TJ102	1K 1/4
R626	ERDS2TJ102	1K 1/4
R627	ERDS2TJ154	150K 1/4
R628	ERDS2TJ684	680K 1/4
R630 ⚠	ERDS1FJ121	120 1/2
R651	ERDS2TJ223	22K 1/4
R652	ERDS2TJ223	22K 1/4
R653	ERDS2TJ223	22K 1/4
R654	ERDS2TJ223	22K 1/4
R655	ERDS2TJ392	3.9K 1/4
R656	ERDS2TJ103	10K 1/4
R657	ERDS2TJ103	10K 1/4
R658	ERDS2TJ223	22K 1/4
R659 ⚠	ERDS1FJ820	82 1/2
R660 ⚠	ERDS1FJ820	82 1/2
R661	ERDS2TJ153	15K 1/4
R671	ERDS2TJ471	470 1/4
R672	ERDS2TJ471	470 1/4
R673	ERDS2TJ222	2.2K 1/4
R674	ERDS2TJ222	2.2K 1/4
R675	ERDS2TJ102	1K 1/4
R676	ERDS2TJ102	1K 1/4
R681	ERDS2TJ222	2.2K 1/4
R682	ERDS2TJ222	2.2K 1/4
R683	ERDS2TJ102	1K 1/4
R684	ERDS2TJ102	1K 1/4
R687	ERDS2TJ221	220 1/4
R688	ERDS2TJ221	220 1/4
R701 ⚠	ERDS1FJ332	3.3K 1/2
R702	ERDS2TJ122	1.2K 1/4
R703	ERDS2TJ272	2.7K 1/4
R704	ERDS2TJ222	2.2K 1/4
R705	ERDS2TJ272	2.7K 1/4
R706	ERDS2TJ1R2	1.2 1/4
R707	ERDS2TJ1R2	1.2 1/4
R708 ⚠	ERDS1FJ270	27 1/2
R709 ⚠	ERDS1FJ270	27 1/2
R710	ERDS2TJ272	2.7K 1/4
R713	ERDS2TJ183	18K 1/4
R715	ERDS2TJ101	100 1/4
R716	ERDS2TJ222	2.2K 1/4
R717 ⚠	ERD25FJ150	15 1/4
R719	ERDS2TJ4R7	4.7 1/4
R720	ERDS2TJ222	2.2K 1/4
R721	ERDS2TJ472	4.7K 1/4

Ref. No.	Part No.	Value.
R722	ERDS2TJ333	33K 1/4
R751	ERDS2TJ272	2.7K 1/4
R752	ERDS2TJ562	5.6K 1/4
R753	ERDS2TJ472	4.7K 1/4
R754	ERDS2TJ472	4.7K 1/4
R755	ERDS2TJ102	1K 1/4
R771 ⚠	ERDS1FJ2R2	2.2 1/2
R772 ⚠	ERDS1FJ2R2	2.2 1/2
R773 ⚠	ERD25FJ4R7	4.7 1/4
R774 ⚠	ERD25FJ4R7	4.7 1/4
R775 ⚠	ERD25FJ4R7	4.7 1/4
R776 ⚠	ERD25FJ4R7	4.7 1/4
R777 ⚠	ERD25FJ4R7	4.7 1/4
R778 ⚠	ERD25FJ4R7	4.7 1/4
R779 ⚠	ERDS1FJ121	120 1/2
R780 ⚠	ERDS1FJ121	120 1/2
R781 ⚠	ERDS1FJ121	120 1/2
R782 ⚠	ERDS1FJ121	120 1/2
R785 ⚠	ERDS1FJ2R2	2.2 1/2
R816	ERDS2TJ473	47K 1/4
R818	ERDS2TJ473	47K 1/4
R826	ERDS2TJ221	220 1/4
R830	ERDS2TJ221	220 1/4
R851 ⚠	ERDS1FJ2R2	2.2 1/2
R891	ERDS2TJ182	1.8K 1/4
R901	ERDS2TJ222	2.2K 1/4
R902	ERDS2TJ105	1M 1/4
R903	ERDS2TJ563	56K 1/4
R904	ERDS2TJ123	12K 1/4
R906	ERDS2TJ334	330K 1/4
R906	ERDS2TJ334	330K 1/4
R907	ERDS2TJ681	680 1/4
R910	ERDS2TJ122	1.2K 1/4
R913	ERDS2TJ101	100 1/4
R914	ERDS2TJ101	100 1/4
R915	ERDS2TJ181	180 1/4
R916	ERDS2TJ104	100K 1/4
R919	ERDS2TJ122	1.2K 1/4
R920	ERDS2TJ122	1.2K 1/4
R922	ERDS2TJ224	220K 1/4
R923	ERDS2TJ331	330 1/4
R924	ERDS2TJ331	330 1/4
R925	ERDS2TJ331	330 1/4
R951	ERDS2TJ472	4.7K 1/4
R954	ERDS2TJ331	330 1/4
R955	ERDS2TJ222	2.2K 1/4

CAPACITORS(VALUE,VOLTAGE)

Ref. No.	Part No.	Value.
C101	RCBS1H150JCY	15P 50
C102	RCBS1H150JCY	15P 50
C103	ECBT1H102KB	0.001 50
C104	RCBS1H181KBY	180P 50
C105	ECEA0JK221B	220 6.3
C106	ECKD1H103PF	0.01 50
C107	ECKD1H223PF	0.022 50
C108	ECEA25M4R7R	4.7 25
C109	ECEA1CU330	33 16
C110	ECBT1H102KB	0.001 50
C201	ECKD1H103PF	0.01 50
C202	ECKD1H103PF	0.01 50
C204	RCBC1H470JLY	47P 50
C205	ECKD1H223PF	0.022 50
C206	RCBS1H150JCY	15P 50
C208	ECEA0JU101	100 6.3
C209	ECEA1CKS100	10 16
C210	ECKD1H223PF	0.022 50
C211	ECKD1H223PF	0.022 50
C212	ECKD1H223PF	0.022 50
C213	RCBC1H101KBY	100P 50
C214	ECEA1CKS100	10 16
C215	ECKD1H103PF	0.01 50
C216	ECEA1CKS100	10 16
C217	ECEA1HK010	1 50
C220	ECEA1CKS100	10 16
C221	ECFTD183KXL	0.018 25
C222	ECQM1H473JZ	0.047 50
C225	RCBS1H180JCY	18P 50

Ref. No.	Part No.	Value.
C226	ECKD1H103PF	0.01 50
C227	ECEA1CKS100	10 16
C230	RCBS1H471JLY	470P 50
C301	ECEA1CU101	100 16
C302	ECEA1HKR47	0.47 50
C303	ECEA1HK010	1 50
C304	ECEA1HK3R3	3.3 50
C305	ECEA1HK3R3	3.3 50
C306	ECEA1HK3R3	3.3 50
C307	ECFTD392KXL	0.0039 25
C308	ECFTD392KXL	0.0039 25
C309	ECKD1H102PF	0.001 50
C310	ECFTD473KXL	0.047 25
C311	ECQP1471JZ	470P 125
C312	ECEA1VK4R7	4.7 35
C313	ECBT1H102KB	0.001 50
C314	ECBT1H102KB	0.001 50
C321	ECEA1CKS100	10 16
C323	ECFTD332KXL	0.0033 25
C324	ECFTD332KXL	0.0033 25
C325	RCBS1H330JLY	33P 50
C327	ECBT1H102KB	0.001 50
C401	ECKD1H103PF	0.01 50
C402	ECKD1H103PF	0.01 50
C405	ECEA1EK3R3B	3.3 25
C406	ECEA1EK3R3B	3.3 25
C407	ECCD1H101K	100P 50
C408	ECCD1H101K	100P 50
C409	ECKD1H103PF	0.01 50
C410	ECKD1H103PF	0.01 50
C411	ECEA1EK3R3B	3.3 25
C412	ECEA1EK3R3B	3.3 25
C415	ECKD1H103PF	0.01 50
C416	ECKD1H103PF	0.01 50
C417	ECKD1H103PF	0.01 50
C418	ECEA1HKR47	0.47 50
C419	ECEA0JU101	100 6.3
C421	ECEA1CK220	22 16
C422	ECEA1CK220	22 16
C425	ECCD1H101K	100P 50
C451	ECEA1EK3R3B	3.3 25
C452	ECEA1EK3R3B	3.3 25
C453	ECCD1H101K	100P 50
C454	ECCD1H101K	100P 50
C455	ECBT1H102KB	0.001 50
C456	ECBT1H102KB	0.001 50
C457	ECFTD223KXL	0.022 25
C458	ECFTD223KXL	0.022 25
C459	ECFTD682KXL	0.0068 25
C460	ECFTD682KXL	0.0068 25
C461	ECEA1EK3R3B	3.3 25
C462	ECEA1EK3R3B	3.3 25
C463	ECEA0JK330	33 6.3
C464	ECEA0JK330	33 6.3
C501	ECKD1H331KB	330P 50
C502	ECKD1H331KB	330P 50
C503	ECFTD333KXL	0.033 25
C504	ECFTD333KXL	0.033 25
C505	ECEA1EK3R3B	3.3 25
C506	ECEA1EK3R3B	3.3 25
C509	ECEA1CKS100	10 16
C510	ECEA1CKS100	10 16
C511	ECCD1H120KC	12P 50
C512	ECCD1H120KC	12P 50
C513	ECEA1EK3R3	3.3 25
C514	ECEA1EK3R3	3.3 25
C515	ECBT1E103ZF	0.01 25
C516	ECEA1EK3R3B	3.3 25
C517	ECKD1H103PF	0.01 50
C518	ECKD1H103PF	0.01 50
C520	ECEA1EK3R3B	3.3 25
C541	ECCD1H330K	33P 50
C542	ECCD1H330K	33P 50
C551	ECFTD563KXL	0.056 25
C552	ECFTD563KXL	0.056 25
C553	ECEA1HK010	1 50
C554	ECEA1HK010	1 50

Ref. No.	Part No.	Value.
C555	ECFTD223KXL	0.022 25
C556	ECFTD223KXL	0.022 25
C557	ECEA1HKR22	0.22 50
C558	ECEA1HKR22	0.22 50
C559	ECFTD472KXL	0.0047 25
C560	ECFTD472KXL	0.0047 25
C561	ECFTD683KXL	0.068 25
C562	ECFTD683KXL	0.068 25
C563	ECFTD102KXL	0.001 25
C564	ECFTD102KXL	0.001 25
C565	ECFTD183KXL	0.018 25
C566	ECFTD183KXL	0.018 25
C567	ECKD1H561KB	560P 50
C568	ECKD1H561KB	560P 50
C569	ECFTD392KXL	0.0039 25
C570	ECFTD392KXL	0.0039 25
C571	ECCD1H820K	82P 50
C572	ECCD1H820K	82P 50
C573	ECKD1H471KB	470P 50
C574	ECKD1H471KB	470P 50
C575	ECEA1EK3R3B	3.3 25
C576	ECEA1EK3R3B	3.3 25
C577	ECEA1CKS100	10 16
C578	ECEA1CKS100	10 16
C579	ECEA1CKS100	10 16
C580	ECEA1CKS100	10 16
C589	ECEA1EK3R3B	3.3 25
C590	ECEA1EK3R3B	3.3 25
C601	ECEA1EK3R3	3.3 25
C602	ECEA1EK3R3	3.3 25
C603	ECQP1391JZ	390P 100
C604	ECQP1391JZ	390P 100
C605	ECEA1CK220	22 16
C606	ECEA1CK220	22 16
C607	ECCD1H080CC	8P 50
C608	ECCD1H080CC	8P 50
C609	ECCD1H151K	150P 50
C610	ECCD1H151K	150P 50
C611	ECKD1H223PF	0.022 50
C612	ECKD1H223PF	0.022 50
C613	ECEA1CK101	100 16
C614	ECEA1HS330	33 50
C615	ECEA2AU100	10 100
C616	ECEA2AN2R2S	2.2 100
C617	ECQM1H681KF	680P 50
C618	ECQM1H681KF	680P 50
C651	ECEA1CKS100	10 16
C671	ECCD1H180KC	18P 50
C672	ECCD1H180KC	18P 50
C673	ECCC1H221K	220P 50
C674	ECCC1H221K	220P 50
C675	ECCD1H101K	100P 50
C676	ECCD1H101K	100P 50
C677	ECCT1H331K	330P 50
C678	ECCT1H331K	330P 50
C679	ECCD1H101K	100P 50
C680	ECCD1H101K	100P 50
C685	ECKD1H103PF	0.01 50
C686	ECKD1H103PF	0.01 50
C687	ECKD1H103PF	0.01 50
C688	ECKD1H103PF	0.01 50
C693	ECCD1H820K	82P 50
C694	ECCD1H820K	82P 50
C695	ECCT1H331K	330P 50
C696	ECCT1H331K	330P 50
C697	ECCD1H101K	100P 50
C698	ECCD1H101K	100P 50
C701	ECETS1HV682U	6800 50
C702	ECETS1HV682U	6800 50
C703	ECKD1H103PF	0.01 50
C704	ECEA1VU101	100 35
C705	ECEA1CK101	100 16
C706	ECKD1H103PF	0.01 50
C708	ECEA1CK101	100 16
C709	ECKD1H103PF	0.01 50
C710	ECKD1H103PF	0.01 50
C711	ECEA1CK101	100 16
C712	ECEA1VU470	47 35
C713	ECEA0JU101	100 6.3
C714	ECEA0JU101	100 6.3
C751	ECEA16V1000	1000 16
C752	ECEA1CU470	47 16
C753	ECKD1H103PF	0.01 50
C754	ECKD1H103PF	0.01 50
C755	ECEA1CU330	33 16
C771 ⚠	ECQE1104KN	0.1 100
C781	ECEA1JU471	470 63
C791 ⚠	ECKWNS103ZVS	0.01 250
C813	ECEA1CKS100	10 16
C815	ECEA1CKS100	10 16
C851	ECFTD104KXL	0.1 25
C852	ECEA0JU101	100 6.3
C853	ECFTD104KXL	0.1 25
C854	ECFTD104KXL	0.1 25
C891	ECKD1H392KB	3900P 50
C901	ECEA0JS102	1000 6.3
C902	ECEA0JS102	1000 6.3
C903	ECEA1HK010	1 50
C905	ECKD1H331KB	330P 50
C910	ECKD1H103PF	0.01 50
C911	ECEA1HU3R3	3.3 50
C912	ECEA1HK3R3	3.3 50
C913	ECEA1HK3R3	3.3 50
C914	ECEA1VK100B	10 35
C915	ECEA1HU101	100 50
C916	ECEA0JS102	1000 6.3
C917	ECKD1H102PF	0.001 50
C919	ECEA1EK3R3B	3.3 25
C920	RCBS1H150JCY	15P 50
C921	RCBS1H150JCY	15P 50
C922	ECKD1H331KB	330P 50
C951	ECEA0JU101	100 6.3

REPLACEMENT PARTS LIST

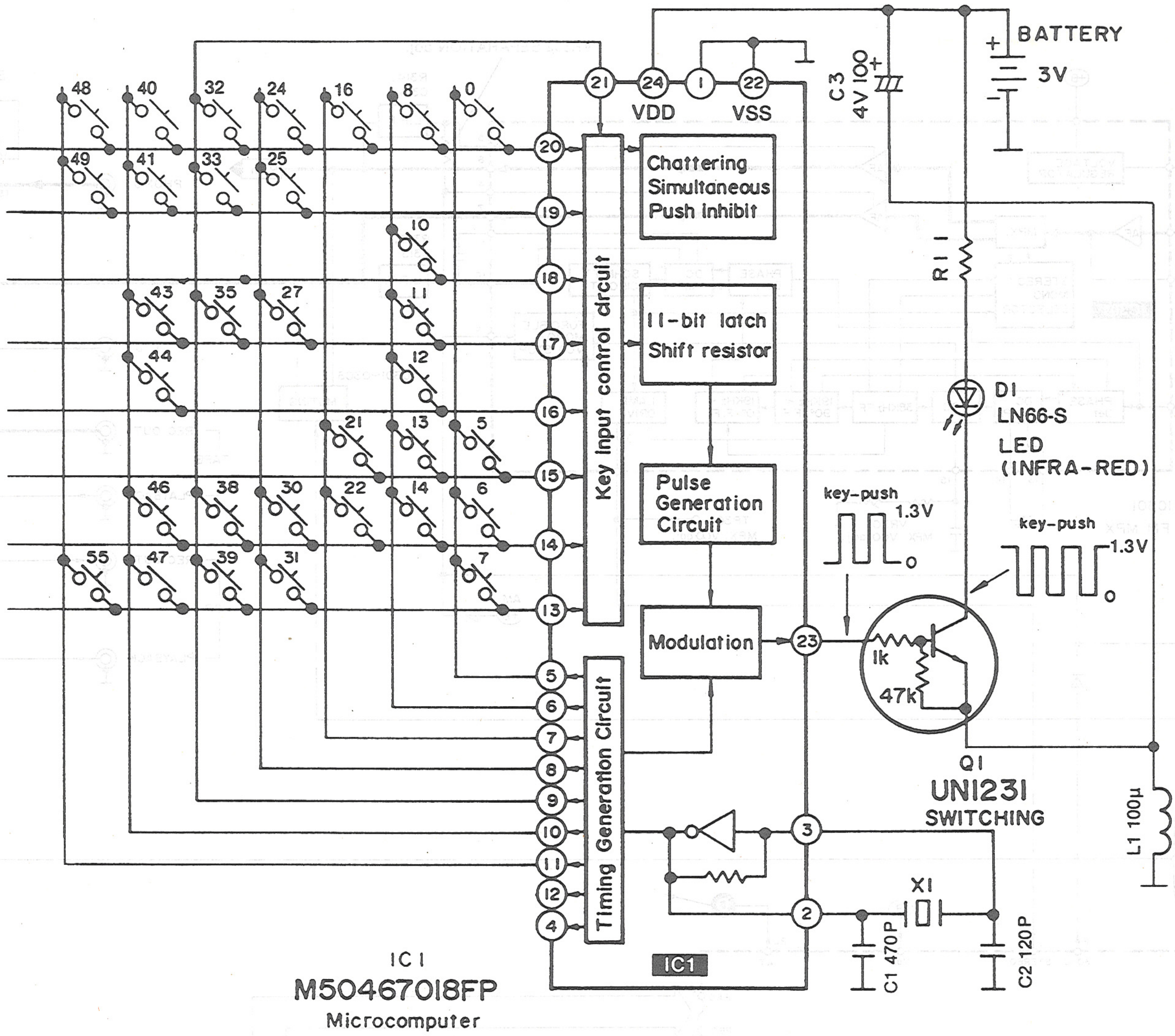
Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC101	LM7001	I.C. PLL SYNTHE SIZER
IC201	AN7273B	I.C. FM/AM IF AMP
IC301	SVIUPC1161C3	I.C. FM MUL TIPLEX
IC401	TC9163N	I.C. IN PUT SELECTOR
IC402	AN6552F	I.C. BUFFER AMP
IC451	AN6558F	I.C. PHONO EQ AMP
IC501	AN6558F	I.C. BUFFER AMP
IC502	LC4966	I.C. GRAPHIC EQ CONTROL
IC551	M5226P	I.C. GRAPHIC EQ AMP
IC552	M5226P	I.C. GRAPHIC EQ AMP
IC601	SVI3203	I.C. POWER AMP
IC851	BA6218	I.C. MOTOR DRIVE
IC901	LC6554H3682	I.C. MICRDCOMPUTER
IC902	AN90B70	I.C. DATA COAD DET
IC951	BA6148	I.C. FL DRIVE
TRANSISTORS		
Q101	2SC2785FE	TRANSISTOR
Q102	2SC2785FE	TRANSISTOR
Q201	2SC2787L	TRANSISTOR
Q202	2SC2787L	TRANSISTOR
Q204	2SC1740SQ	TRANSISTOR
Q205	2SC1740SQ	TRANSISTOR
Q206	2SA933SQR	TRANSISTOR
Q207	2SC1740SQ	TRANSISTOR
Q208	2SA933SQR	TRANSISTOR
Q209	2SA933SQR	TRANSISTOR
Q210	2SC1740SQ	TRANSISTOR
Q301	2SD1450RS	TRANSISTOR
Q302	2SD1450RS	TRANSISTOR
Q303	2SA933SQR	TRANSISTOR
Q501	2SJ40CD	TRANSISTOR
Q502	2SJ40CD	TRANSISTOR
Q503	2SK117-GR	TRANSISTOR
Q504	2SK117-GR	TRANSISTOR
Q505	UN4111	TRANSISTOR
Q506	UN4211	TRANSISTOR
Q507	UN4211	TRANSISTOR
Q508	UN4111	TRANSISTOR
Q509	UN4211	TRANSISTOR
Q510	2SJ40CD	TRANSISTOR
Q513	UN4211	TRANSISTOR
Q514	UN4211	TRANSISTOR
Q601	2SA684-RNC	TRANSISTOR
Q651	2SC3311A-Q	TRANSISTOR
Q652	2SA1309Q	TRANSISTOR
Q701	2SD1762DEF	TRANSISTOR
Q702	2SD1762DEF	TRANSISTOR
Q703	2SC1685NCQRS	TRANSISTOR
Q704	2SC1685NCQRS	TRANSISTOR
Q705	2SC1384A-R	TRANSISTOR
Q708	2SB1185DEF	TRANSISTOR
Q709	2SC1685NCQRS	TRANSISTOR
Q710	2SB1185DEF	TRANSISTOR
Q711	UN4211	TRANSISTOR
Q713	UN4215	TRANSISTOR
Q751	2SC3311A-Q	TRANSISTOR
Q752	2SC1384A-R	TRANSISTOR
Q891	UN4113	TRANSISTOR
Q892	UN4215	TRANSISTOR
Q893	UN4215	TRANSISTOR
Q894	UN4215	TRANSISTOR
Q901	2SC1740SQ	TRANSISTOR
Q902	UN4215	TRANSISTOR
Q953	UN4115	TRANSISTOR
Q955	UN4115	TRANSISTOR
Q960	UN4213	TRANSISTOR
Q962	UN4213	TRANSISTOR
Q965	UN4115	TRANSISTOR
Q966	UN4115	TRANSISTOR
Q967	UN4115	TRANSISTOR
Q968	UN4115	TRANSISTOR
Q969	UN4115	TRANSISTOR
Q970	UN4115	TRANSISTOR
Q971	UN4115	TRANSISTOR
Q972	UN4115	TRANSISTOR
Q973	UN4115	TRANSISTOR
DIODES		
D101	MA165	DIODE
D202	MA4110M	DIODE
D204	MA165	DIODE
D206	MA165	DIODE
D301	MA165	DIODE
D551	MA4030M	DIODE
D552	MA4030M	DIODE
D601	MA4120	DIODE
D602	MA4120	DIODE
D651	MA165	DIODE
D652	MA4051-M	DIODE
D653	MA165	DIODE
D654	MA167	DIODE
D655	MA167	DIODE
D701 ⚠	SVDS3V40	DIODE
D702 ⚠	SVDS3V40	DIODE
D703 ⚠	SVDS3V40	DIODE
D704 ⚠	SVDS3V40	DIODE
D705	MA4062-M	DIODE
D706	MA4062-M	DIODE
D709	MA4300M	DIODE
D710	MA29WA	DIODE
D711	MA4150M	DIODE
D712	MA165	DIODE
D751 ⚠	SVD1SR35200A	DIODE
D752 ⚠	SVD1SR35200A	DIODE
D753 ⚠	SVD1SR35200A	DIODE
D754 ⚠	SVD1SR35200A	DIODE
D755	MA165	DIODE
D756	MA165	DIODE
D757	MA4068M	DIODE
D781 ⚠	SVD1SR35200A	DIODE
D820	MA165	DIODE
D822	MA165	DIODE
D891	MA165	DIODE
D892	LN846RP	L.E.D
D901	MA165	DIODE
D902	MA165	DIODE
D903	MA165	DIODE
D904	MA165	DIODE
D905	MA165	DIODE
D906	MA165	DIODE
D907	MA165	DIODE
D908	MA165	DIODE
D909	MA165	DIODE
D910	MA165	DIODE
D911	MA165	DIODE
D912	MA4068M	DIODE
D914	MA165	DIODE
D915	MA165	DIODE
D919	MA165	DIODE
D921	MA165	DIODE
D922	MA165	DIODE
D952	MA165	DIODE
D953	MA165	DIODE
D955	MA165	DIODE
D956	MA165	DIODE
D958	MA4075M	DIODE
D959	MA4075M	DIODE
D960	MA165	DIODE
VARIABLE RESISTORS		
VR301	EVND4AA00B53	V.R. MPX VCO
VR302	EVND4AA00B53	V.R. SEPARATION
VR501	EUWMV7F20B15	V.R. BALANCE

Ref. No.	Part No.	Description
VR502	EWHFDAF20G15	V.R, MAIN
VR552	EVBJJAJ15G15	V.R, EQ
VR553	EVBJJAJ15G15	V.R, EQ
VR554	EVBJJAJ15G15	V.R.EQ
VR555	EVBJJAJ15G15	V.R, EQ
VR556	EVBJJAJ15G15	V.R, EQ
COILS AND TRANSFORMERS		
L101	RLQZPR47KT-Y	CHOKE COIL
L102	RLQZP1R2KT-Y	CHOKE COIL
L203	ELEPK1R0MA	COIL
L204	ELEPK1R0MA	COIL
L321	SLM1B9-P	MPX COIL
L322	SLM1B9-P	MPX COIL
L324	SLM1B10-M	COIL
L325	RLQZP1R2KT-Y	CHOKE COIL
L601	SLQY07G-40	CHOKE COIL
L602	SLQY07G-40	CHOKE COIL
L791 ⚠	SLQX400-D	COIL
L792 ⚠	SLQX400-D	COIL
L851	ELEPK1R0MA	COIL
L852	ELEPK1R0MA	COIL
L892	RLQZP101KT-Y	COIL
L893	RLQZP101KT-Y	COIL
L902	RLQZP101KT-Y	COIL
T201	SLI4B511-Z	I.F.TRANSFORMER
T202	SLI4B513-Z	I.F.TRANSFORMER
T701 ⚠	SLT5M540-K	POWER TRANSFORMER
T751 ⚠	SLT5I28	POWER TRANSFORMER
COMPONENT COMBINATIONS		
Z201	SLA2Z1-T	COIL
Z202	SLI7Z101-T	I.F.TRANSFORMER
Z321	SLA4Z13-Z	ANTENNA COIL
Z891	GP1U509M	DIODE . REMOTE SENSOR
Z901	EXFP12331MF	COMPONENT COMBINATION
Z902	EXBF8E473J	CONPONENT COMBINATION
Z903	EXBF9E103J	COMPONENT COMBINATION
Z904	EXBF8E103J	COMPONENT COMBINATION
Z905	EXBF9E103J	COMPONENT COMBINATION
Z951	EXBF10E104J	100KΩ X 10
FILTERS		
CF201	SVFE107MZ-A	CERAMIC FILTER
CF201	SVFE107MZ-D	CERAMIC FILTER
CF201	SVFE107MZ-E	CERAMIC FILTER
CF202	SVFE107MM-A	CERAMIC FILTER
CF202	SVFE107MM-D	CERAMIC FILTER

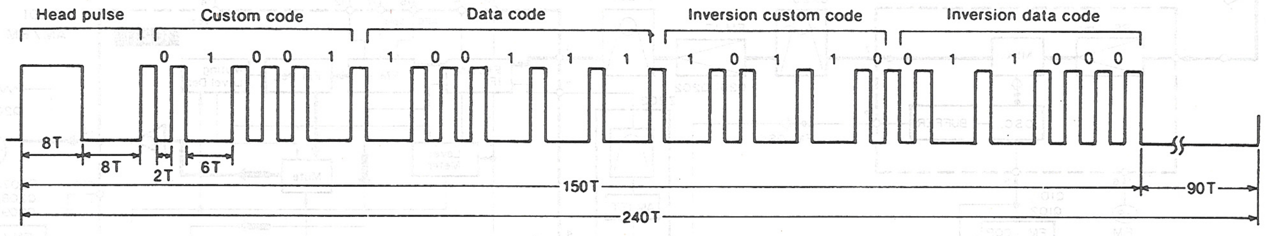
Ref. No.	Part No.	Description
CF202	SVFE107MM-E	CERAMIC FILTER
OSCILLATORS		
X101	SVQ49U722-S	CRYSTAL OSCILLATOR
DISPLAYS		
FL901	SADBG542GK	DISPLAY TUBE
FRONT PACKS		
TN101	SNVFE337G01	TUNER PACK
LAMPS		
PL1	SWL126-1	LAMP
FUSES		
F1 ⚠	XBA2C10TB0	FUSE 250V, T1A
SWITCHES		
S1	EVQQB005R	SW, PRESET TUNING
S2	EVQQB005R	SW, PRESET TUNING
S3	EVQQB005R	SW, PRESET TUNING
S4	EVQQB005R	SW, PRESET TUNING
S5	EVQQB005R	SW, PRESET TUNING
S6	EVQQB005R	SW, PRESET TUNING
S7	EVQQB005R	SW, PRESET TUNING
S8	EVQQB005R	SW, PRESET TUNING
S9	EVQQB005R	SW, PRESET TUNING
S10	EVQQB005R	SW, PRESET TUNING
S11	EVQQB005R	SW, MEMORY-SCAN GROUP-S
S12	EVQQB005R	SW, FM MODE SELECT
S13	EVQQB005R	SW, BAND SELECT(FM)
S14	EVQQB005R	SW, BAND SELECT(AM)
S16	EVQQB005R	SW, TUNUNG(MANUAL)
S17	EVQQB005R	SW, TUNING(AUTE)
S18	EVQQB005R	SW, CHANGE MODE SELECTO
S19	EVQQB005R	SW, ASSORT MODE
S20	EVQQB005R	SW, GROUP SELECTOR
S21	EVQQB005R	SW, MEMORY
S22	EVQQB005R	SW, IOUDNESS
S23	EVQQB005R	SW, PHONO
S24	EVQQB005R	SW, TUNER
S25	EVQQB005R	SW, CD
S26	EVQQB005R	SW, VCR1
S27	EVQQB005R	SW, VCR2
S601	SSH2137	SW, SP SELECTOR
S701 ⚠	SSH1238	SW, POWER
S702	SSH1193	SW, SP IMPEDANCE
RELAYS		
RL601 ⚠	SSY134	RELAY
RL751	SSY140	RELAY

■ SCHEMATIC DIAGRAM OF REMOTE-CONTROL TRANSMITTER


48
40
32
24
16
8
0
49
41
33
25
10
43
35
27
11
44
12
21
13
5
46
38
30
22
14
6
55
47
39
31
7
21
24
1
22
VDD
VSS
20
19
18
17
16
15
14
13
5
6
7
8
9
10
11
12
4
3
2
23
Key input control circuit
Chattering Simultaneous Push inhibit
11-bit latch Shift resistor
Pulse Generation Circuit
Modulation
Timing Generation Circuit
IC1
IC1
M50467018FP
Microcomputer
C3 4V 100
BATTERY
3V
R11
D1
LN66-S
LED
(INFRA-RED)
key-push
1.3V
0
key-push
1.3V
0
1k
47k
Q1
UN1231
SWITCHING
L1 100µ
X1
C1 470P
C2 120P

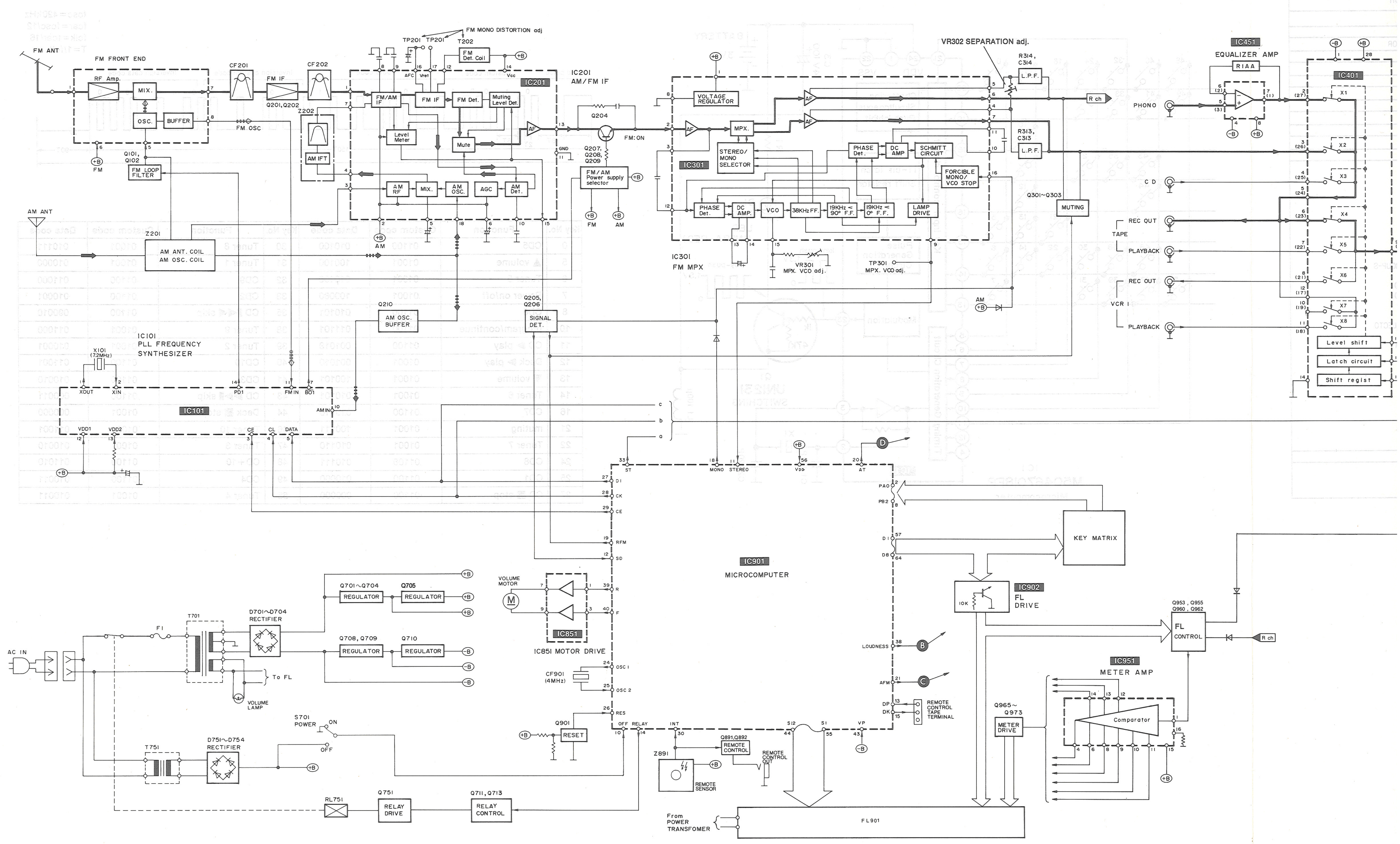
• KEY NUMBER DESCRIPTION AND DATA CODE (Example key No. 21)

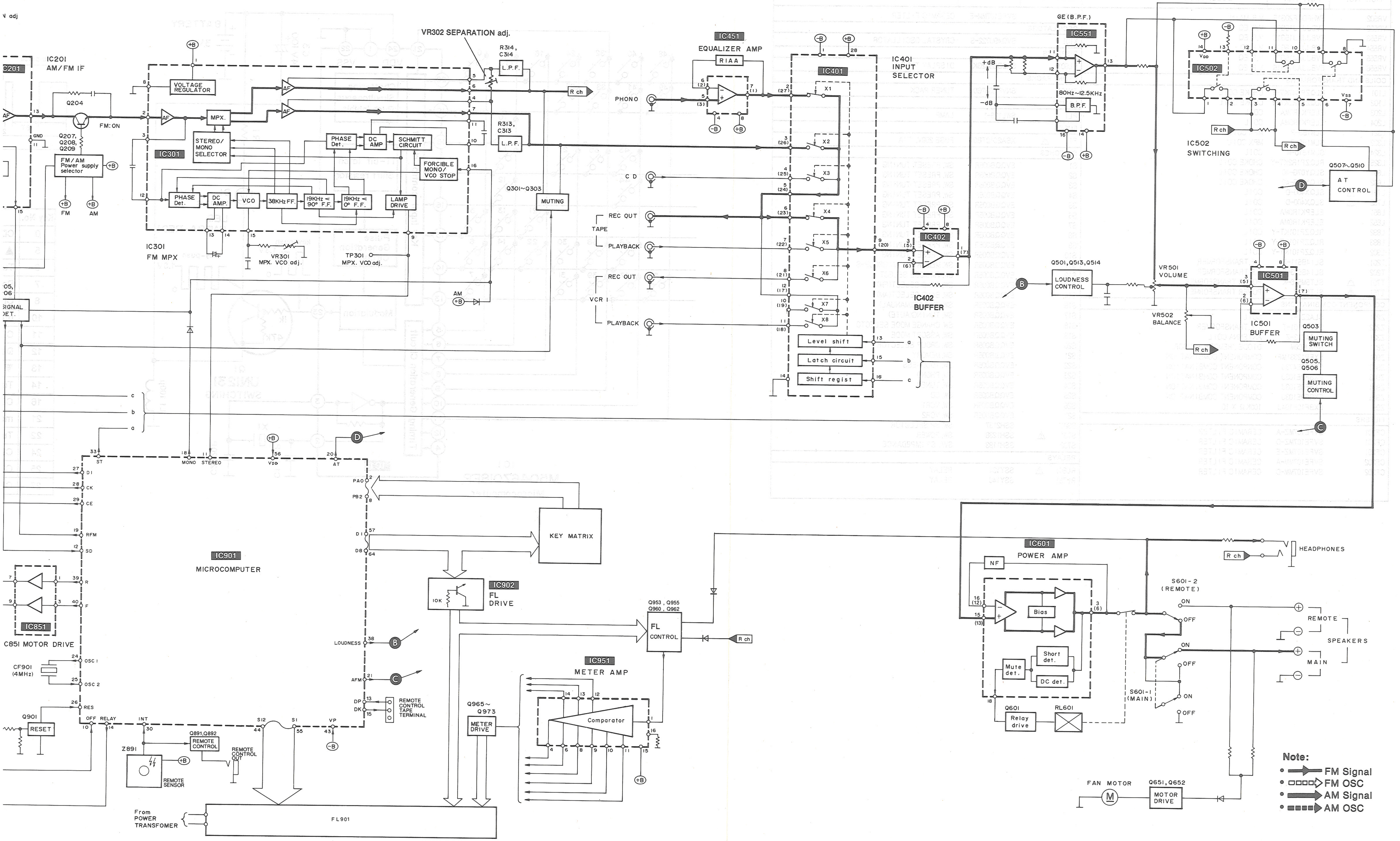
fosc = 420 kHz
fcar = fosc/12
fclk = fcar/16
T = 1/fclk


Head pulse
Custom code
Data code
Inversion custom code
Inversion data code
0 1 0 0 1
1 0 0 1 1 1
1 0 1 1 0
0 1 1 0 0 0
8T
8T
2T
6T
150T
90T
240T

Key No.	Function	Custom code	Data code	Key No.	Function	Custom code	Data code
0	CD5	01100	010100	30	Tuner 8	01001	010111
5	▲ volume	01001	100100	31	Tuner 1	01001	010000
6	Tuner 5	01001	010100	32	CD9	01100	011000
7	Power on/off	01001	100000	33	CD2	01100	010001
8	CD6	01100	010101	35	CD ▮◀◀ skip	01100	000010
10	program/continue	01100	011101	38	Tuner 9	01001	011000
11	CD ▶ play	01100	001010	39	Tuner 2	01001	010001
12	Deck ▶ play	01001	001010	40	CD10	01100	011001
13	▼ volume	01001	100101	41	CD3	01100	010010
14	Tuner 6	01001	010101	43	CD ▶▶▮ skip	01100	000011
16	CD7	01100	010110	44	Deck ■ stop	01001	000000
21	muting	01001	100111	46	Tuner 10	01001	011001
22	Tuner 7	01001	010110	47	Tuner 3	01001	010010
24	CD8	01100	010111	48	CD+10	01100	011010
25	CD1	01100	010000	49	CD4	01100	010011
27	CD ■ stop	01100	000000	55	Tuner 4	01001	010011

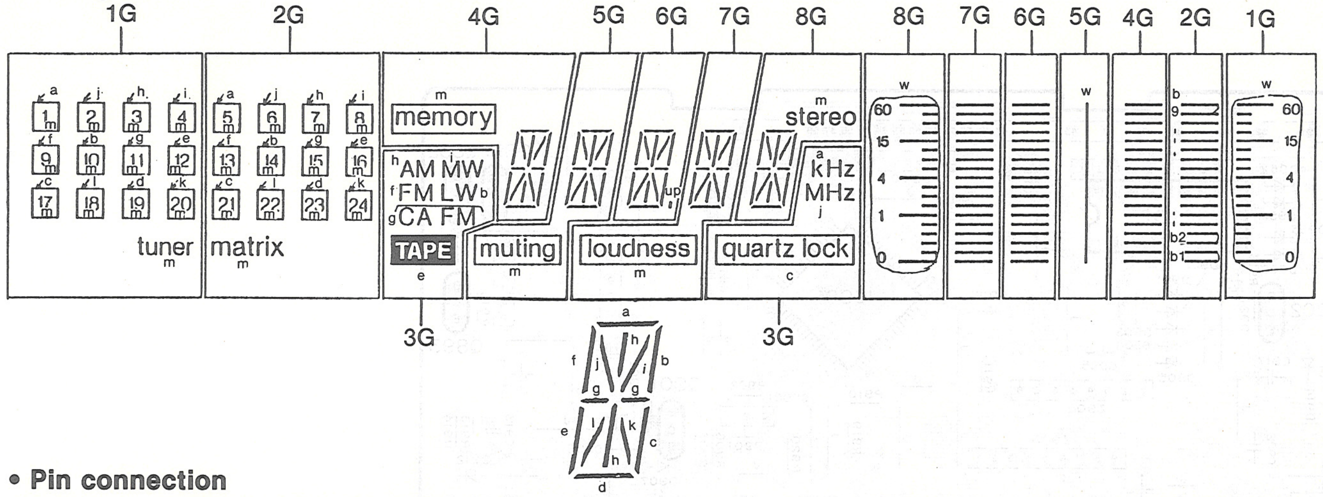
BLOCK DIAGRAM


FM ANT
FM FRONT END
RF Amp.
MIX.
OSC.
BUFFER
FM OSC
CF201
FM IF
Q201,Q202
CF202
Z202
AM IFT
TP201 TP201
FM MONO DISTORTION adj
T202
FM Det. Coil
AFC
Vref
Vcc
IC201
FM/AM IF
FM IF
FM Det.
Muting Level Det.
Level Meter
Mute
AF
AM RF
Mix.
AM OSC.
AGC
AM Det.
GND
IC201 AM/FM IF
Q204
FM:ON
Q207, Q208, Q209
FM/AM Power supply selector
FM
AM
Q101, Q102
FM LOOP FILTER
AM ANT
Z201
AM ANT. COIL
AM OSC. COIL
Q210
AM OSC. BUFFER
Q205, Q206
SIGNAL DET.
IC101 PLL FREQUENCY SYNTHESIZER
X101 (7.2MHz)
XOUT
XIN
PD1
FM IN
BO1
AM IN
IC101
VDD1
VDD2
CE
CL
DATA
VOLTAGE REGULATOR
AF
MPX.
STEREO/ MONO SELECTOR
IC301
PHASE Det.
DC AMP
SCHMITT CIRCUIT
FORCIBLE MONO/ VCO STOP
PHASE Det.
DC AMP.
VCO
38KHz FF.
19KHz < 90° F.F.
19KHz < 0° F.F.
LAMP DRIVE
IC301 FM MPX
VR301 MPX. VCO adj.
TP301 MPX. VCO adj.
VR302 SEPARATION adj.
R314, C314
L.P.F.
R313, C313
L.P.F.
R ch
Q301~Q303
MUTING
IC451
EQUALIZER AMP
RIAA
PHONO
IC401
X1
X2
X3
X4
X5
X6
X7
X8
C D
REC OUT
TAPE
PLAYBACK
REC OUT
VCR 1
PLAYBACK
Level shift
Latch circuit
Shift regist
c
b
a
ST
MONO
STEREO
VDD
AT
D
DI
CK
CE
RFM
SD
PA0
PB2
DI
D8
KEY MATRIX
IC901
MICROCOMPUTER
IC902
FL DRIVE
10K
VOLUME MOTOR
M
IC851
IC851 MOTOR DRIVE
R
F
CF901 (4MHz)
OSC 1
OSC 2
RES
Q901
RESET
OFF
RELAY
INT
S12
S1
VP
LOUDNESS
B
AFM
C
DP
DK
REMOTE CONTROL TAPE TERMINAL
Q953, Q955
Q960, Q962
FL CONTROL
R ch
IC951
METER AMP
Comparator
Q965~ Q973
METER DRIVE
Q891,Q892
REMOTE CONTROL
REMOTE CONTROL OUT
Z891
REMOTE SENSOR
From POWER TRANSFOMER
FL901
AC IN
F1
T701
D701~D704 RECTIFIER
To FL
VOLUME LAMP
Q701~Q704
REGULATOR
Q705
REGULATOR
Q708, Q709
REGULATOR
Q710
REGULATOR
+B
-B
S701 POWER
ON
OFF
T751
D751~D754 RECTIFIER
RL751
Q751
RELAY DRIVE
Q711, Q713
RELAY CONTROL


IC201
AM/FM IF
Q204
FM: ON
Q207, Q208, Q209
FM/AM Power supply selector
FM
AM
VR302 SEPARATION adj.
R314, C314
L.P.F.
R313, C313
VOLTAGE REGULATOR
AF
MPX
STEREO/MONO SELECTOR
IC301
PHASE Det.
DC AMP
SCHMITT CIRCUIT
FORCIBLE MONO/VCO STOP
VCO
38KHz FF
19KHz ∠ 90° F.F.
19KHz ∠ 0° F.F.
LAMP DRIVE
IC301
FM MPX
VR301
MPX. VCO adj.
TP301
MPX. VCO adj.
Q301~Q303
MUTING
R ch
AM
SIGNAL DET.
IC451
EQUALIZER AMP
RIAA
PHONO
C D
TAPE
REC OUT
PLAYBACK
VCR I
REC OUT
PLAYBACK
IC401
INPUT SELECTOR
X1
X2
X3
X4
X5
X6
X7
X8
Level shift
Latch circuit
Shift regist
IC402
IC402
BUFFER
GE (B.P.F.)
IC551
+dB
−dB
80Hz~12.5KHz
B.P.F.
IC502
VDD
VSS
IC502
SWITCHING
Q507~Q510
AT CONTROL
Q501, Q513, Q514
LOUDNESS CONTROL
VR501
VOLUME
VR502
BALANCE
IC501
IC501
BUFFER
Q503
MUTING SWITCH
Q505, Q506
MUTING CONTROL
ST
MONO
STEREO
VDD
AT
DI
CK
CE
RFM
SD
R
F
IC851
C851 MOTOR DRIVE
OSC 1
OSC 2
CF901 (4MHz)
RES
Q901
RESET
OFF
RELAY
INT
Q891, Q892
REMOTE CONTROL
REMOTE CONTROL OUT
Z891
REMOTE SENSOR
S12
S1
VP
PA0
PB2
D1
D8
IC901
MICROCOMPUTER
KEY MATRIX
IC902
FL DRIVE
10K
LOUDNESS
AFM
DP
DK
REMOTE CONTROL TAPE TERMINAL
Q953, Q955
Q960, Q962
FL CONTROL
IC951
METER AMP
Comparator
Q965~Q973
METER DRIVE
From POWER TRANSFOMER
FL901
IC601
POWER AMP
NF
Bias
Short det.
Mute det.
DC det.
Q601
Relay drive
RL601
HEADPHONES
S601-2 (REMOTE)
ON
OFF
S601-1 (MAIN)
REMOTE
MAIN
SPEAKERS
FAN MOTOR
M
Q651, Q652
MOTOR DRIVE
Note:
FM Signal
FM OSC
AM Signal
AM OSC

DESCRIPTION OF FLUORESCENT DISPLAY

- **Grid assignment**


1G
2G
4G
5G
6G
7G
8G
8G
7G
6G
5G
4G
2G
1G
1 2 3 4 9 10 11 12 17 18 19 20
5 6 7 8 13 14 15 16 21 22 23 24
tuner
matrix
memory
AM MW
FM LW
CA FM
TAPE
muting
loudness
quartz lock
stereo
kHz
MHz
up
60
15
4
1
0
w
b1
b2
3G
3G
a
b
c
d
e
f
g
h
i
j
k
l

- **Pin connection**

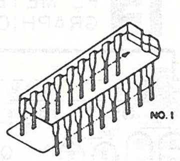
PIN NO.	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29
CONNECTION	NP	F1	NP	NP	NP	k	d	ℓ	c	e	g	b	f	i	h	j	a	NP	NP	NP	1G	NP	2G	NP	3G	NP	4G	NP	NP	5G	NP	6G	NP	NP	7G

PIN NO.	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	NP	NP	8G	NP	m	NP	NP	NC	NP	NP	NP	NP	NP	w	n	o	p	q	r	s	t	u	v	NP	NP	NP	F2	NP

- **Anode connection**

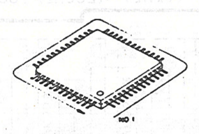
	1G	2G	3G	4G	5G	6G	7G	8G
a	☐ 1	☐ 5	KHz	a	a	a	a	a
b	☐ 10	☐ 14	LW	b	b	b	b	b
c	☐ 17	☐ 21	quartz lock	c	c	c	c	c
d	☐ 19	☐ 23	-	d	d	d	d	d
e	☐ 12	☐ 16	TAPE	e	e	e	e	e
f	☐ 9	☐ 13	FM	f	f	f	f	f
g	☐ 11	☐ 15	CAFM	g	g	g	g	g
h	☐ 3	☐ 7	AM	h	h	h	h	h
i	☐ 4	☐ 8	MW	i	i	i	i	i
j	☐ 2	☐ 6	MHz	j	j	j	j	j
k	☐ 20	☐ 24	-	k	k	k	k	k
ℓ	☐ 18	☐ 22	-	ℓ	ℓ	ℓ	ℓ	ℓ
m	1~4 9~12 17~20 tuner	5~8 13~16 21~24 matrix	-	memory	muting	D.P	loud ness	stereo
n	-	═ b1	-	═ b1	-	═ b1	═ b1	-
o	-	═ b2	-	═ b2	-	═ b2	═ b2	-
p	-	═ b3	-	═ b3	-	═ b3	═ b3	-
q	-	═ b4	-	═ b4	-	═ b4	═ b4	-
r	-	═ b5	-	═ b5	-	═ b5	═ b5	-
s	-	═ b6	-	═ b6	-	═ b6	═ b6	-
t	-	═ b7	-	═ b7	-	═ b7	═ b7	-
u	-	═ b8	-	═ b8	-	═ b8	═ b8	-
v	-	═ b9	-	═ b9	-	═ b9	═ b9	-
w	60~0 |||||	-	-	-	|	-	-	60~0 |||||

TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

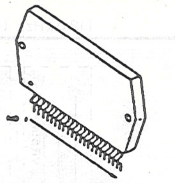


AN6552F	8 PIN	BA6148	16 PIN
AN6558F	8 PIN	M5226P	16 PIN
LM7001	8 PIN	AN90B70	18 PIN
LC4966	14 PIN	AN7273A	18 PIN
AN7470	16 PIN	TC9163N	28 PIN

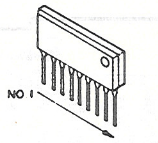
LC6554H3682 (64 PIN)



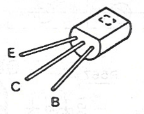
SVI3203 (18 PIN)



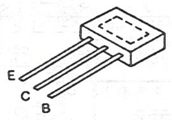
BA6218 (9 PIN)



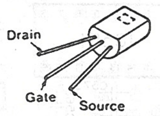
2SC1384, 2SC1685, 2SA933, 2SC1740



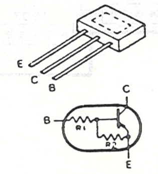
2SA1309, 2SC2785
2SC2787, 2SC3311
2SD1450



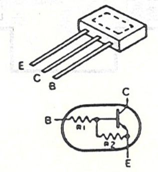
2SK117
2SJ40CD


Drain
Gate
Source

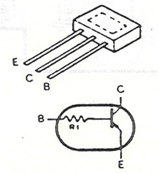
UN4111, UN4113


E
C
B
C
B
R1
R2
E

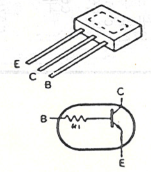
UN4211, UN4213


E
C
B
C
B
R1
R2
E

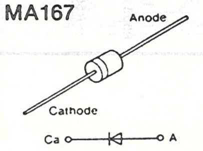
UN4115

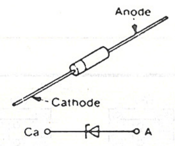


UN4215



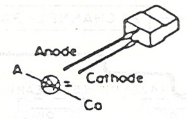
SVDS3V20, MA165, 1SR35200, MA29WA, MA167


Anode
Cathode
Ca
A

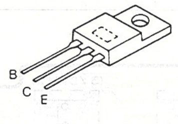

Anode
Cathode
Ca
A

MA4051M, MA4068M,
MA4062M, MA4075M,
MA4150M, MA4110M,
MA4300M, MA4120M,
MA4030M

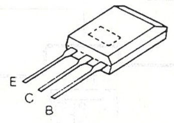
LN846RP


Anode
A
Cathode
Ca

2SB1185,
2SD1762



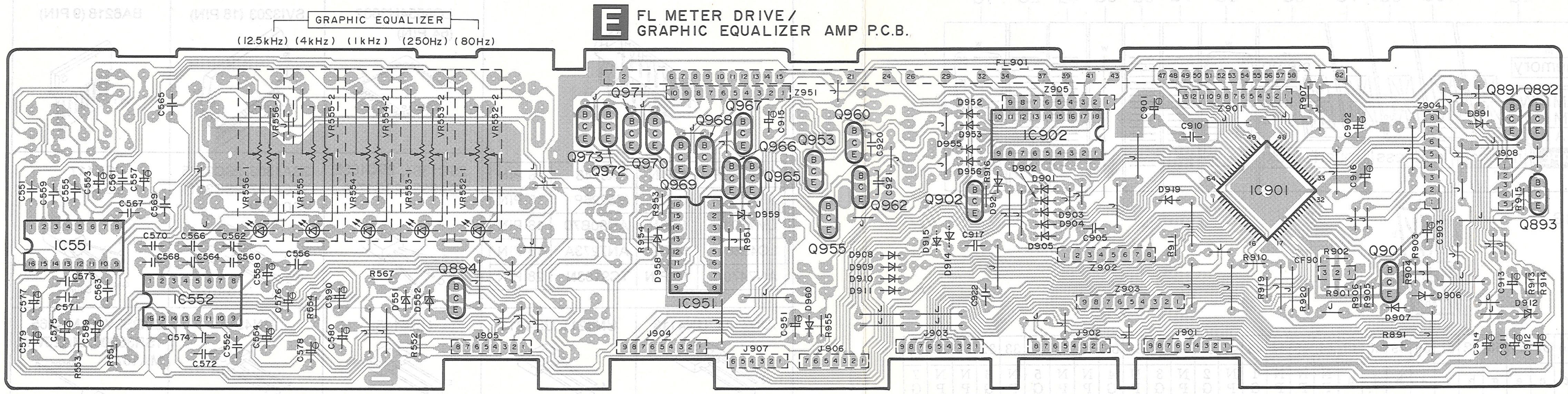
2SC684



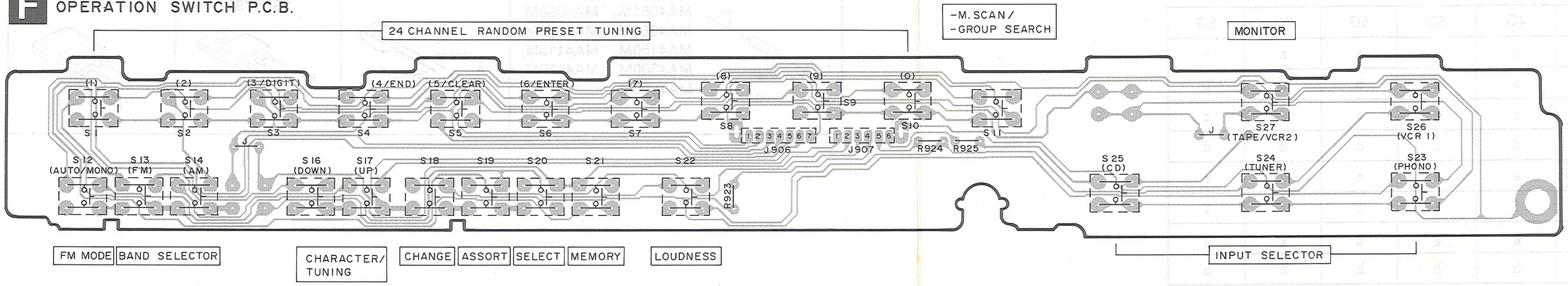
1 2 3 4 5 6 7 8 9

PRINTED CIRCUIT BOARDS

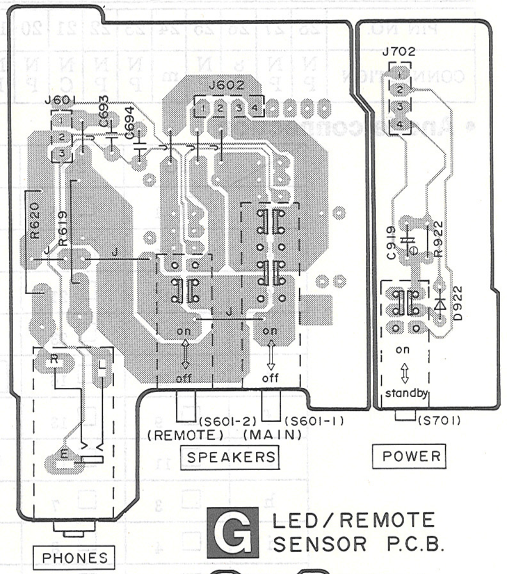
E FL METER DRIVE/ GRAPHIC EQUALIZER AMP P.C.B.


GRAPHIC EQUALIZER
(12.5kHz) (4kHz) (1kHz) (250Hz) (80Hz)
FL901
IC551
IC552
IC951
IC902
IC901
Q971
Q973
Q972
Q970
Q969
Q968
Q967
Q966
Q965
Q960
Q953
Q955
Q962
Q902
Q894
Q901
Q891 Q892
Q893
J904
J905
J906
J907
J903
J902
J901
J908

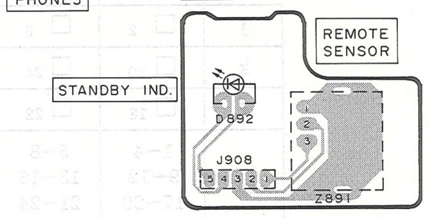
F OPERATION SWITCH P.C.B.


24 CHANNEL RANDOM PRESET TUNING
-M.SCAN/
-GROUP SEARCH
MONITOR
(1) (2) (3/DIGIT) (4/END) (5/CLEAR) (6/ENTER) (7) (8) (9) (0)
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11
S27 (TAPE/VCR2)
S26 (VCR 1)
S12 (AUTO/MONO) S13 (FM) S14 (AM)
S16 (DOWN) S17 (UP) S18 S19 S20 S21 S22
S25 (CD) S24 (TUNER) S23 (PHONO)
J906 J907
FM MODE
BAND SELECTOR
CHARACTER/ TUNING
CHANGE
ASSORT
SELECT
MEMORY
LOUDNESS
INPUT SELECTOR

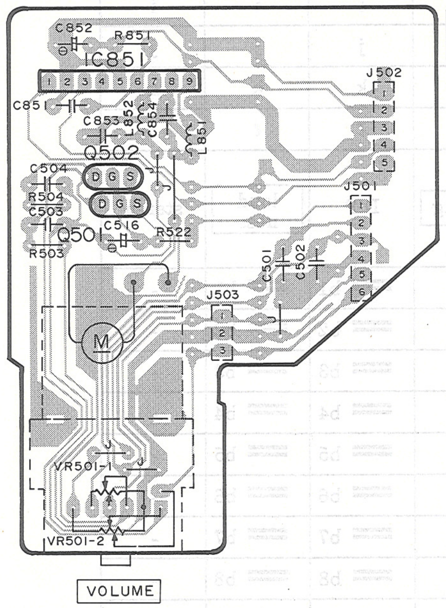
H POWER SWITCH/ SPEAKER SWITCH/ HEADPHONES JACK P.C.B.


J601
J602
J702
R620
R619
C919
R922
D922
on
off
standby
(S601-2) (S601-1)
(REMOTE) (MAIN)
(S701)
SPEAKERS
POWER
PHONES

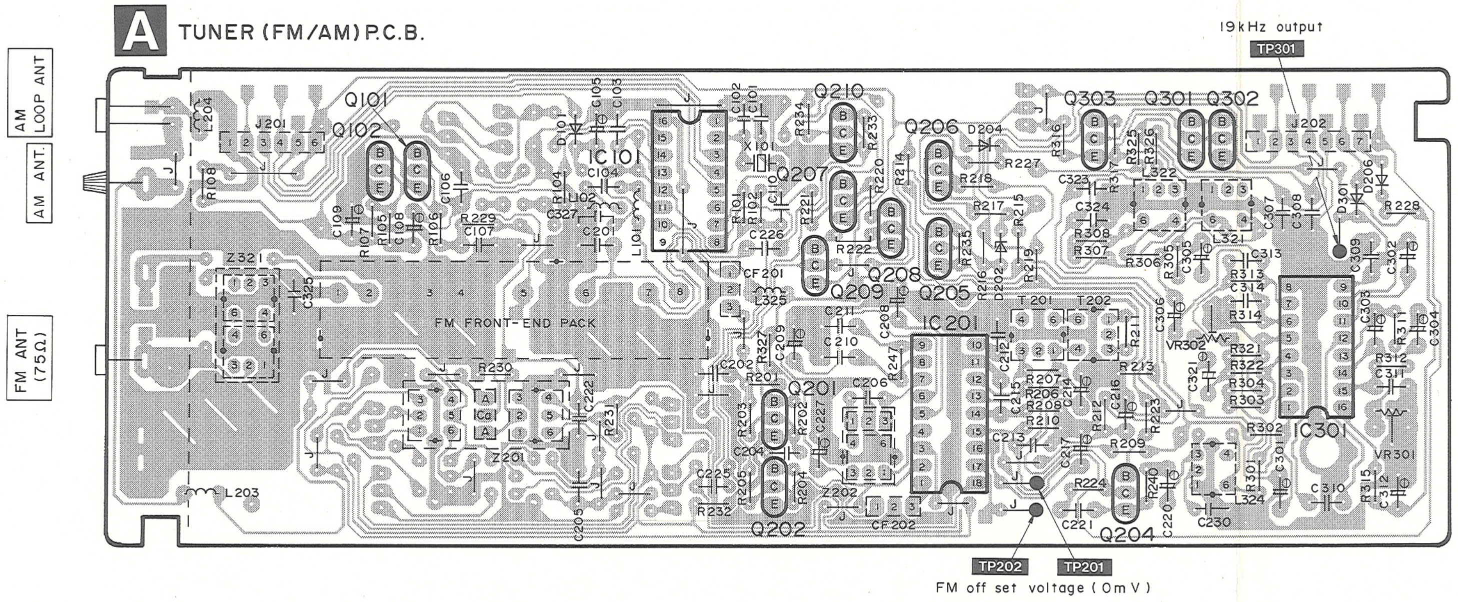
G LED/REMOTE SENSOR P.C.B.


REMOTE SENSOR
STANDBY IND.
D892
J908
Z891

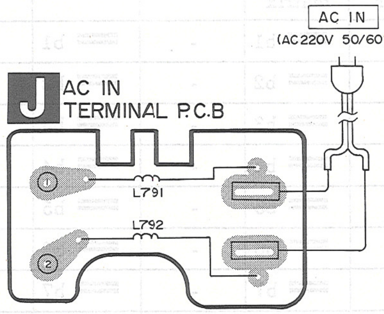
D VOLUME/ MOTOR DRIVE P.C.B.


IC851
J502
J501
J503
Q502
Q501
M
VR501-1
VR501-2
VOLUME

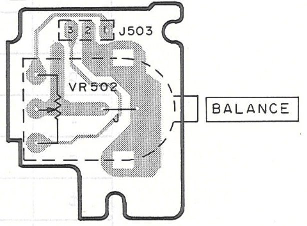
A TUNER (FM/AM) P.C.B.


19kHz output
TP301
AM LOOP ANT
AM ANT
FM ANT (75Ω)
Q101
Q102
IC101
Q210
Q206
Q207
Q209
Q208
Q205
Q303 Q301 Q302
IC201
IC301
Q201
Q202
Q204
FM FRONT-END PACK
J201
J202
TP202
TP201
FM off set voltage (0mV)

J AC IN TERMINAL P.C.B.


AC IN
(AC220V 50/60Hz)
L791
L792

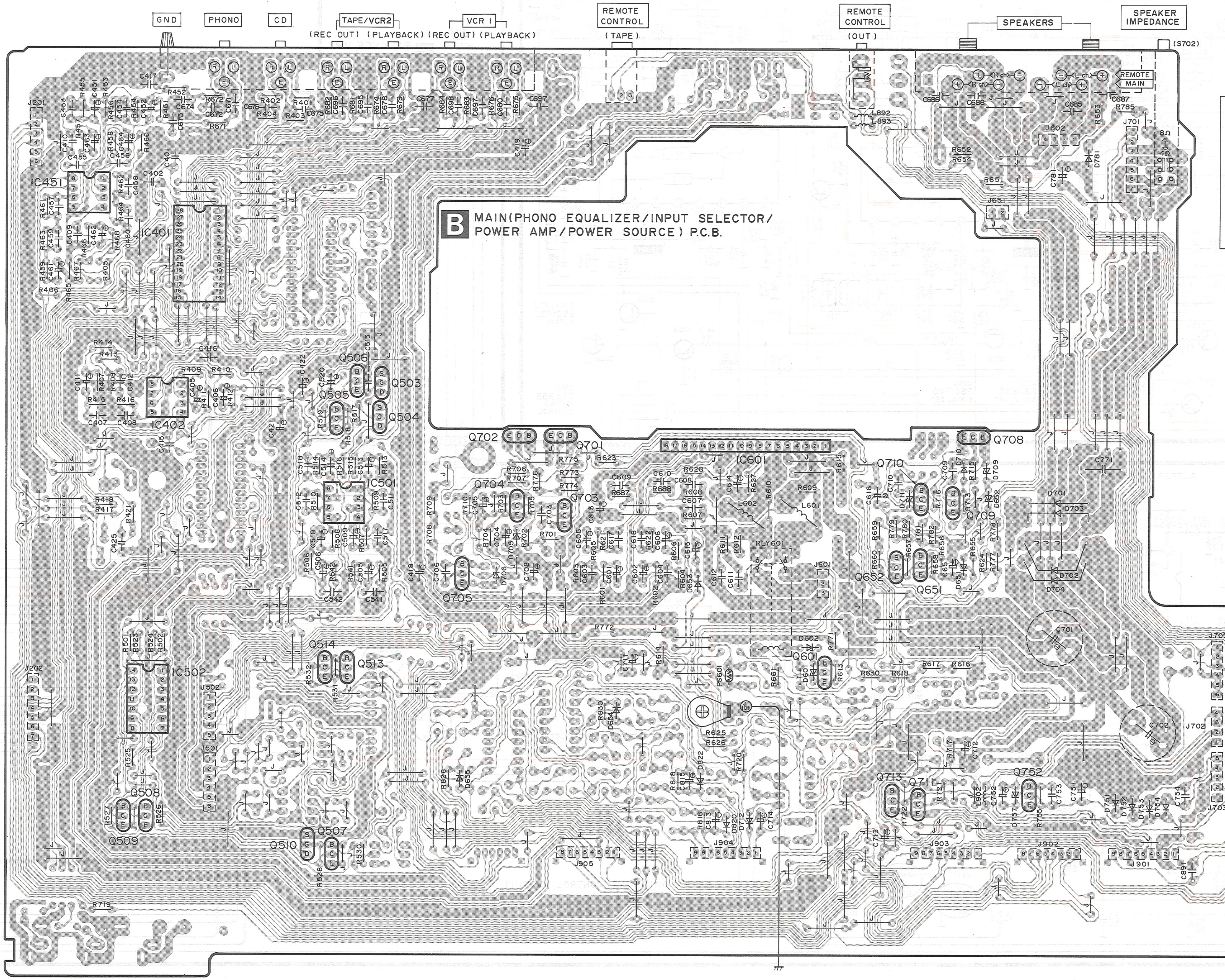
C BALANCE VR P.C.B.


J503
VR502
BALANCE

D

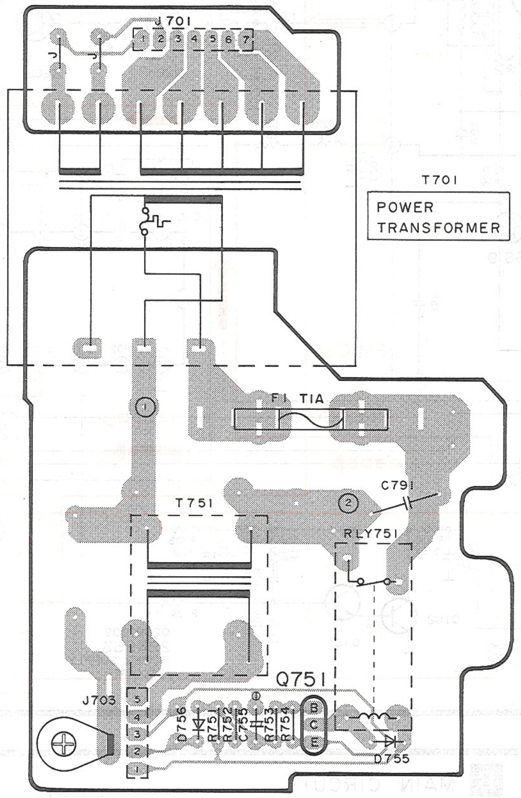
11 12 13 14 15 16 17 18 19 20

WIRING



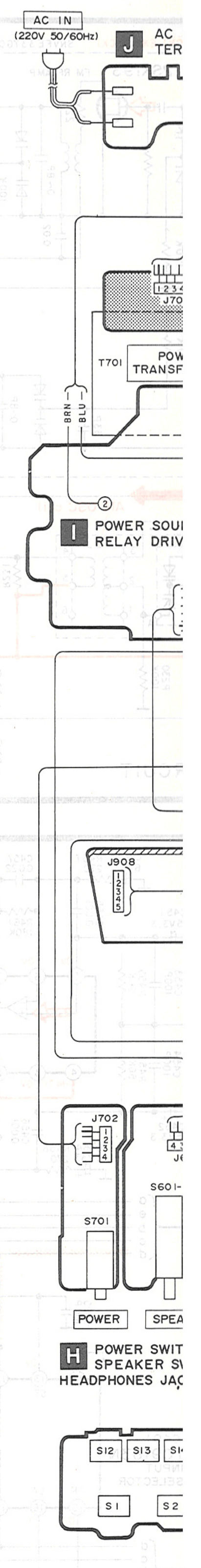
GND
PHONO
CD
TAPE/VCR2
VCR 1
(REC OUT) (PLAYBACK) (REC OUT) (PLAYBACK)
REMOTE CONTROL
(TAPE)
REMOTE CONTROL
(OUT)
SPEAKERS
SPEAKER IMPEDANCE
(S702)
R L
J201
J202
IC451
IC401
IC402
IC501
IC502
IC601
Q503
Q504
Q505
Q506
Q507
Q508
Q509
Q510
Q513
Q514
Q601
Q651
Q652
Q701
Q702
Q703
Q704
Q705
Q708
Q709
Q710
Q711
Q713
Q752
RLY601
L601
L602
L892
L893
J501
J502
J601
J602
J651
J701
J702
J703
J705
J901
J902
J903
J904
J905
C701
C702
C771
D701
D702
D703
D704
D781
REMOTE
MAIN
8Ω
R719
R772

B MAIN(PHONO EQUALIZER/INPUT SELECTOR/ POWER AMP/POWER SOURCE) P.C.B.

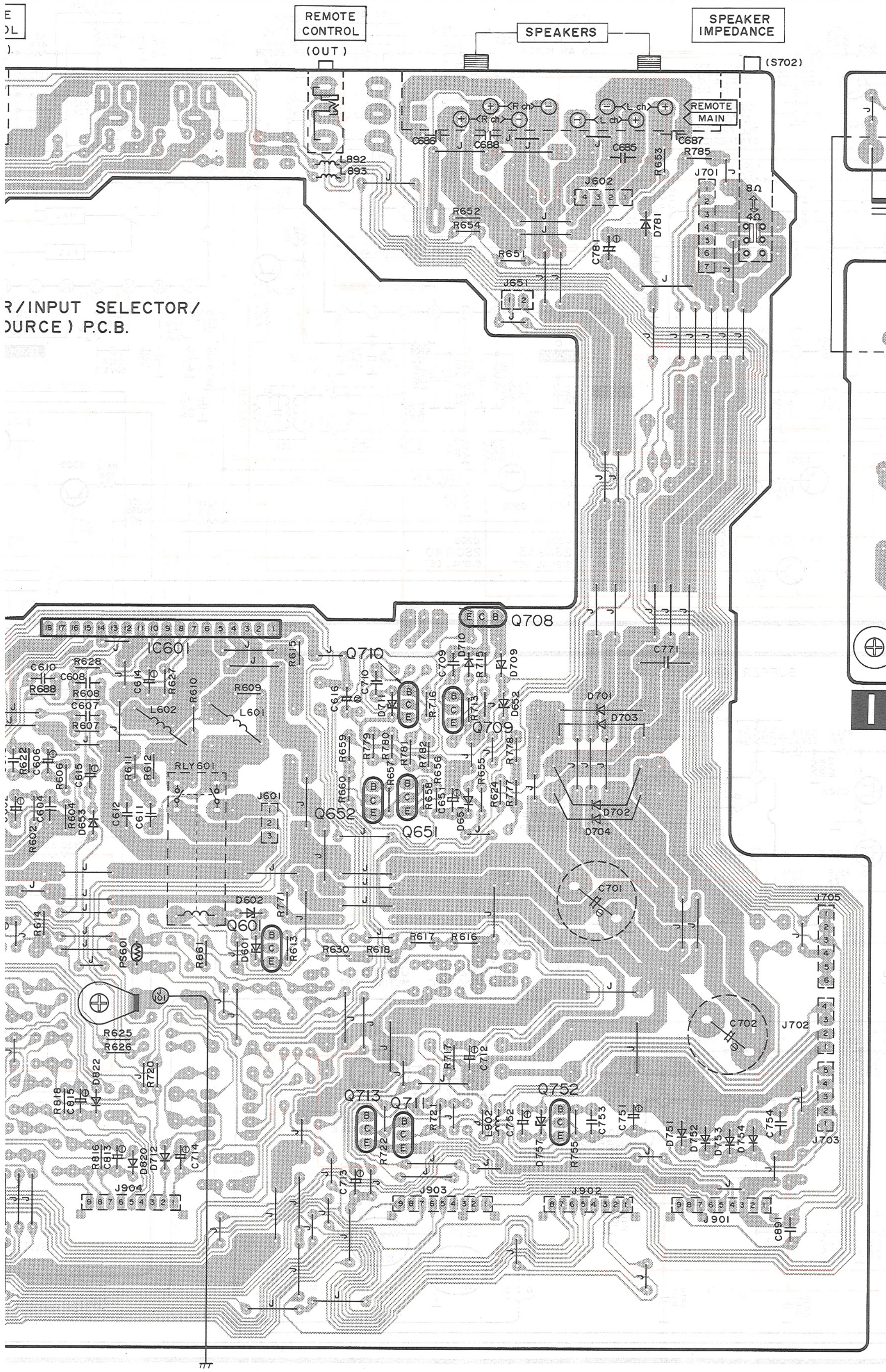


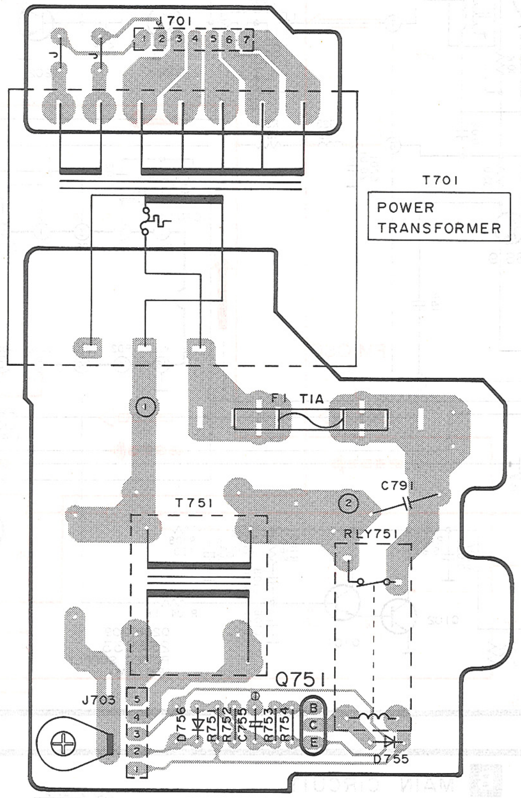
J701
T701
POWER TRANSFORMER
F1 T1A
T751
RLY751
C791
J703
Q751
D756
R751
R752
C755
R753
R754
D755

I POWER SOURCE/ RELAY DRIVE P.C.B.



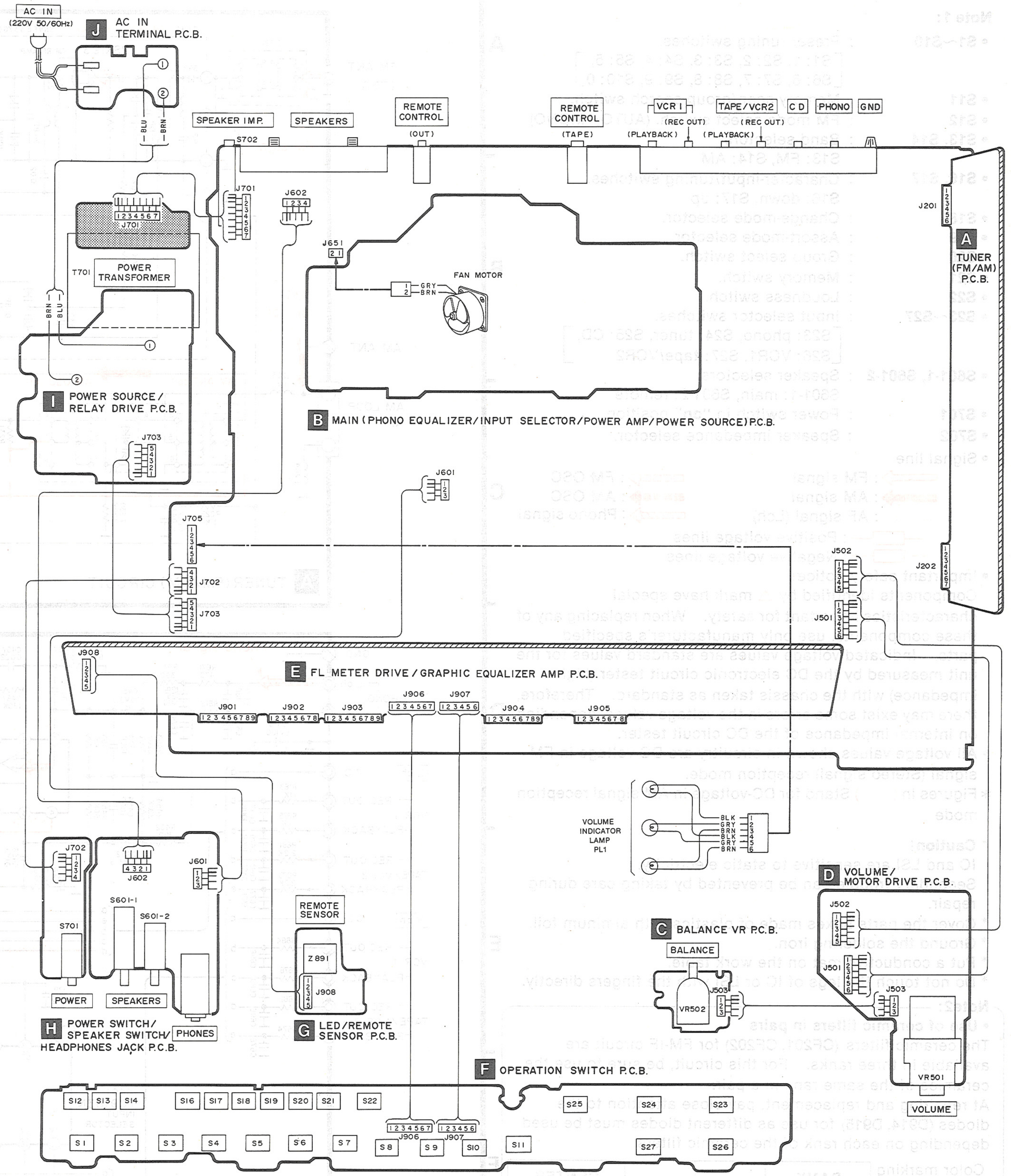
AC IN
(220V 50/60Hz)
J
AC
TER
T701
POW
TRANS
BRN
BLU
I
POWER SOU
RELAY DRIV
J908
J702
S601
S701
POWER
SPEA
H
POWER SWIT
SPEAKER S
HEADPHONES JA
S12
S13
S1
S2


REMOTE CONTROL
(OUT)
SPEAKERS
SPEAKER IMPEDANCE
(S702)
REMOTE MAIN
(R ch)
(L ch)
8Ω
4Ω
L892
L893
C686
C688
C685
C687
R785
R653
J602
J701
D784
C781
R652
R654
R651
J651
R/INPUT SELECTOR/
OURCE) P.C.B.
IC601
Q708
Q710
Q709
Q652
Q651
Q601
Q713
Q711
Q752
RLY601
L601
L602
J601
D701
D703
D702
D704
C771
C701
C702
D602
J705
J702
J703
J904
J903
J902
J901
R625
R626
R630
R618
R617
R616


J701
T701
POWER TRANSFORMER
F1 T1A
T751
C791
RLY751
Q751
J703
D755
D756
R751
R752
C755
R753
R754

I POWER SOURCE/ RELAY DRIVE P.C.B.

WIRING CONNECTION DIAGRAM


AC IN
(220V 50/60Hz)
J AC IN TERMINAL P.C.B.
BLU
BRN
SPEAKER IMP.
S702
SPEAKERS
REMOTE CONTROL
(OUT)
REMOTE CONTROL
(TAPE)
VCR I
(PLAYBACK)
(REC OUT)
TAPE/VCR2
(PLAYBACK)
(REC OUT)
CD
PHONO
GND
J701
J602
J651
T701
POWER TRANSFORMER
FAN MOTOR
GRY
BRN
J201
A TUNER (FM/AM) P.C.B.
I POWER SOURCE/ RELAY DRIVE P.C.B.
B MAIN (PHONO EQUALIZER/INPUT SELECTOR/POWER AMP/POWER SOURCE) P.C.B.
J703
J601
J705
J702
J703
J502
J202
J501
J908
E FL METER DRIVE/GRAPHIC EQUALIZER AMP P.C.B.
J901
J902
J903
J906
J907
J904
J905
VOLUME INDICATOR LAMP PL1
BLK
GRY
BRN
D VOLUME/ MOTOR DRIVE P.C.B.
J702
J602
J601
S601-1
S601-2
S701
REMOTE SENSOR
Z891
J908
C BALANCE VR P.C.B.
BALANCE
VR502
J503
J502
J501
J503
VR501
VOLUME
POWER
SPEAKERS
PHONES
H POWER SWITCH/ SPEAKER SWITCH/ HEADPHONES JACK P.C.B.
G LED/REMOTE SENSOR P.C.B.
F OPERATION SWITCH P.C.B.
S12
S13
S14
S16
S17
S18
S19
S20
S21
S22
S25
S24
S23
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S27
S26
J906
J907

SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology)

Note 1:

- **S1～S10** : Preset tuning switches.
  [S1: 1, S2: 2, S3: 3, S4: 4, S5: 5,
  S6: 6, S7: 7, S8: 8, S9: 9, S10: 0]
- **S11** : Memory-scan/group-search switch.
- **S12** : FM mode select switch. (AUTO↔MONO)
- **S13, S14** : Band selectors.
  S13: FM, S14: AM
- **S16, S17** : Character-input/tuning switches.
  S16: down, S17: up
- **S18** : Change-mode selector.
- **S19** : Assort-mode selector.
- **S20** : Group select switch.
- **S21** : Memory switch.
- **S22** : Loudness switch.
- **S23～S27** : Input selector switches.
  [S23: phono, S24: tuner, S25: CD,
  S26: VCR1, S27: tape/VCR2]
- **S601-1, S601-2** : Speaker selectors.
  S601-1: main, S601-2: remote
- **S701** : Power switch in "on" position.
- **S702** : Speaker impedance selector.
- Signal line
  - ⇨ : FM signal
  - ➡ : AM signal
  - ⇢ : AF signal (Lch)
  - ▭▭▭▷ : FM OSC
  - ■■■▶ : AM OSC
  - ▱▱▷ : Phono signal
  - —▭— : Positive voltage lines
  - --▭-- : Negative voltage lines
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts. Indicated voltage values are standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on internal impedance of the DC circuit tester.
- All voltage values shown in circuitry are DC voltage in FM signal (Stereo signal) reception mode.

＊Figures in (   ) Stand for DC-voltage in AM signal reception mode

* **Caution**!
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

* Cover the parts boxes made of plastics with alminum foil.

* Ground the soldering iron.

* Put a conductive mat on the work table.

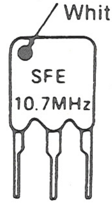
* Do not touch the legs of IC or LSI with the fingers directly.

Note2:

- **Use of ceramic filters in pairs**

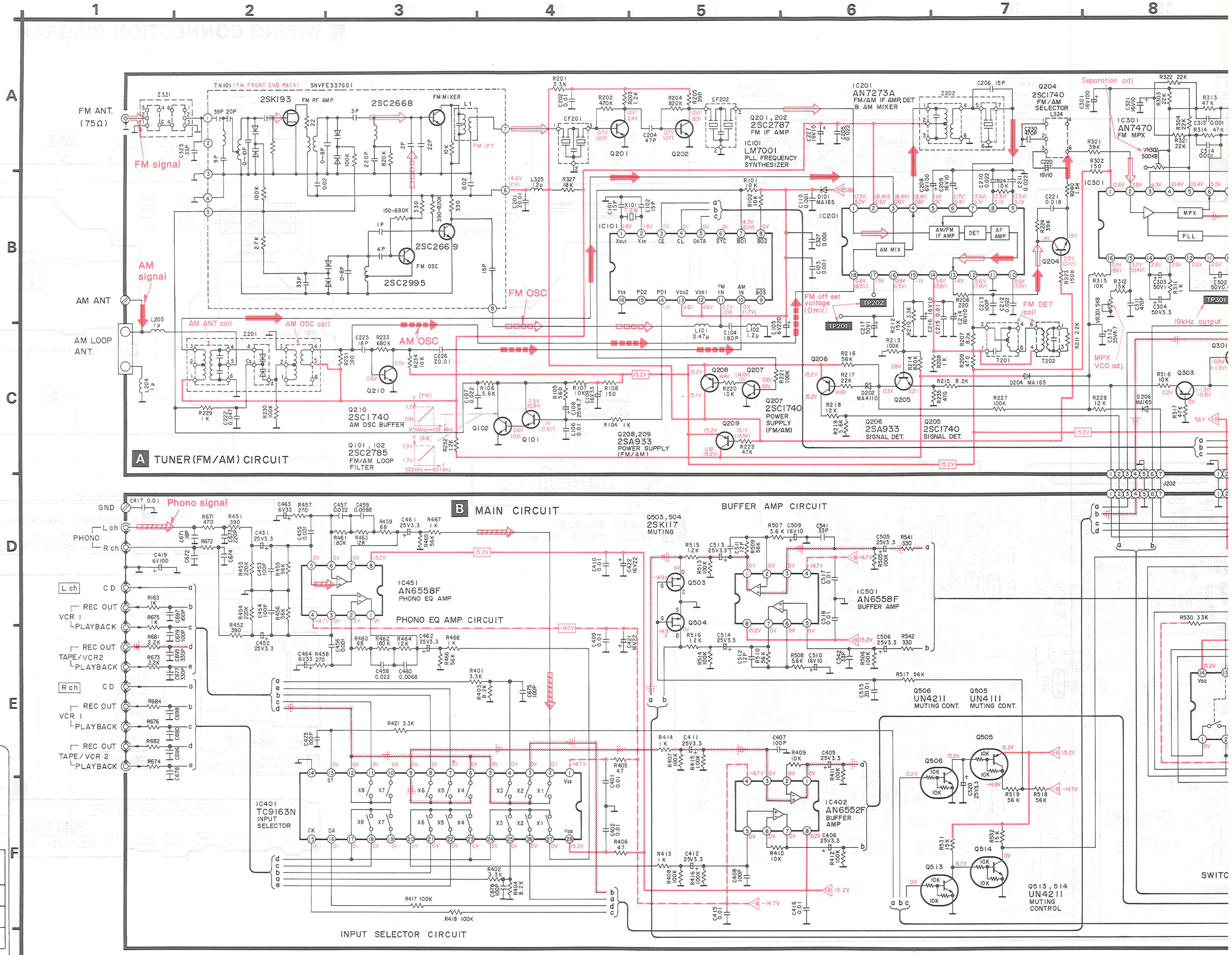
The ceramic filters (CF201, CF202) for FM-IF circuit are available in three ranks. For this circuit, be sure to use the ceramics of the same rank in a pair.
At repairing and replacement, pay close attention to the diodes (D914, D915) for use as different diodes must be used depending on each rank of the ceramic filters.

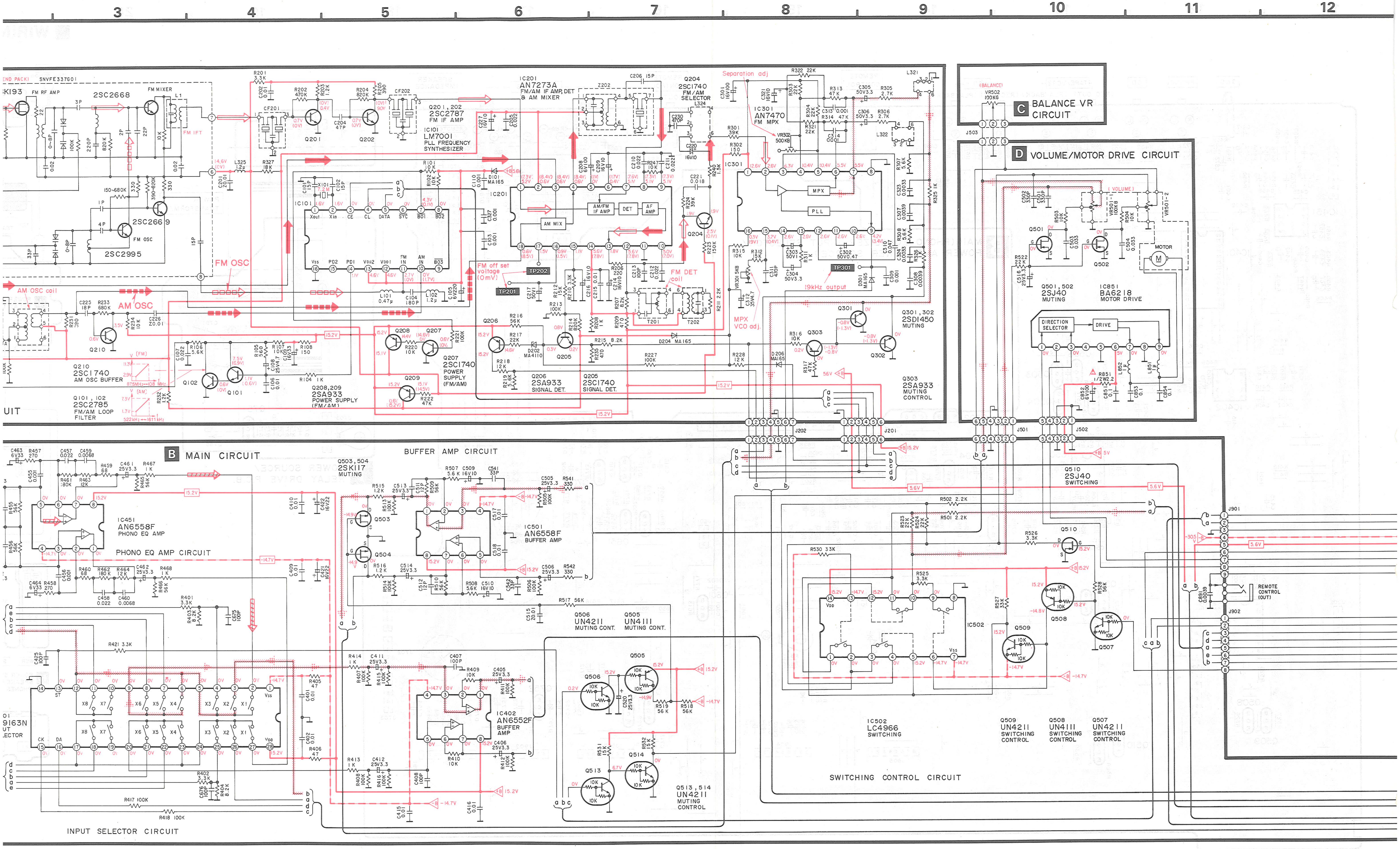
Color marking (Red, Black or White)

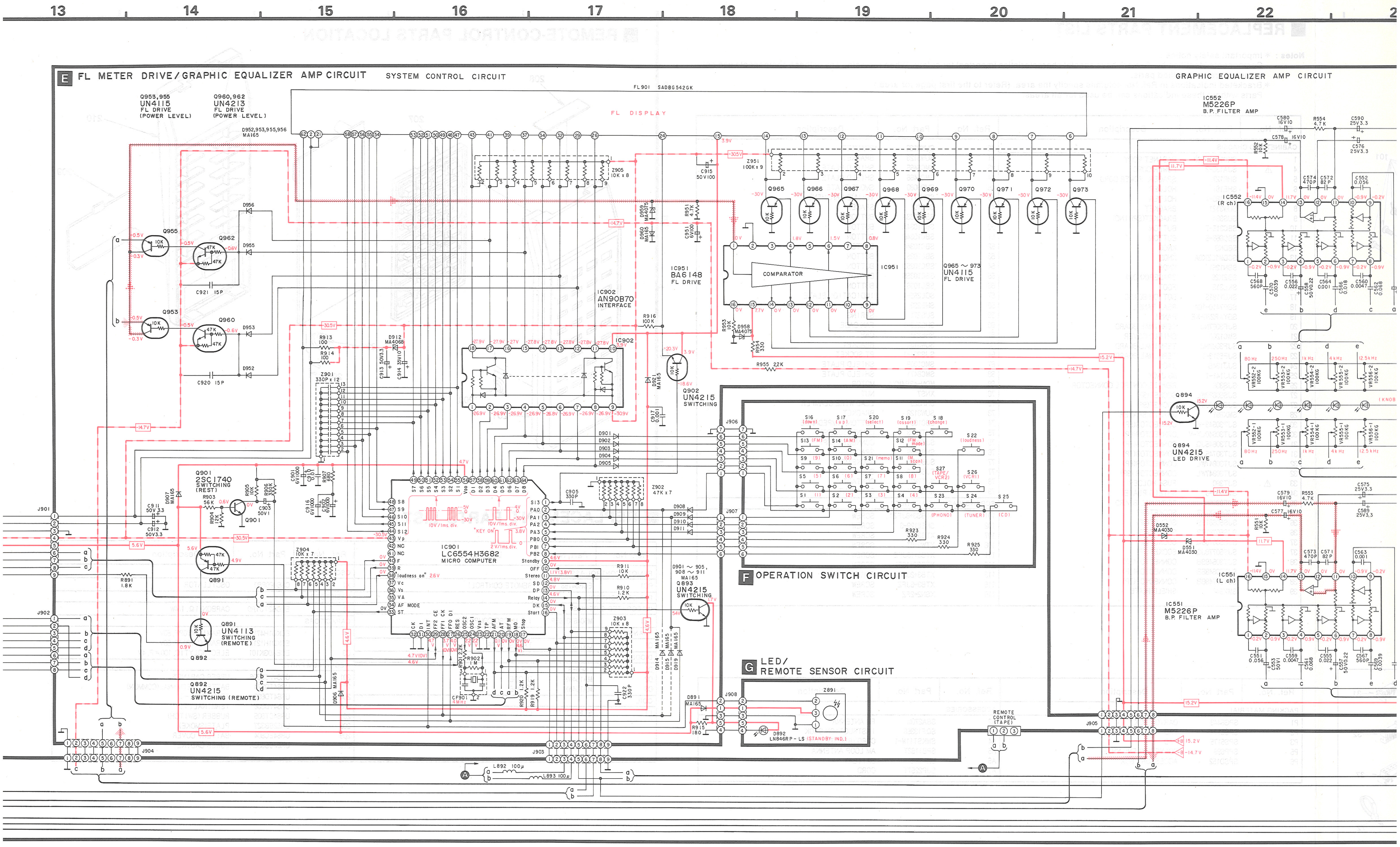


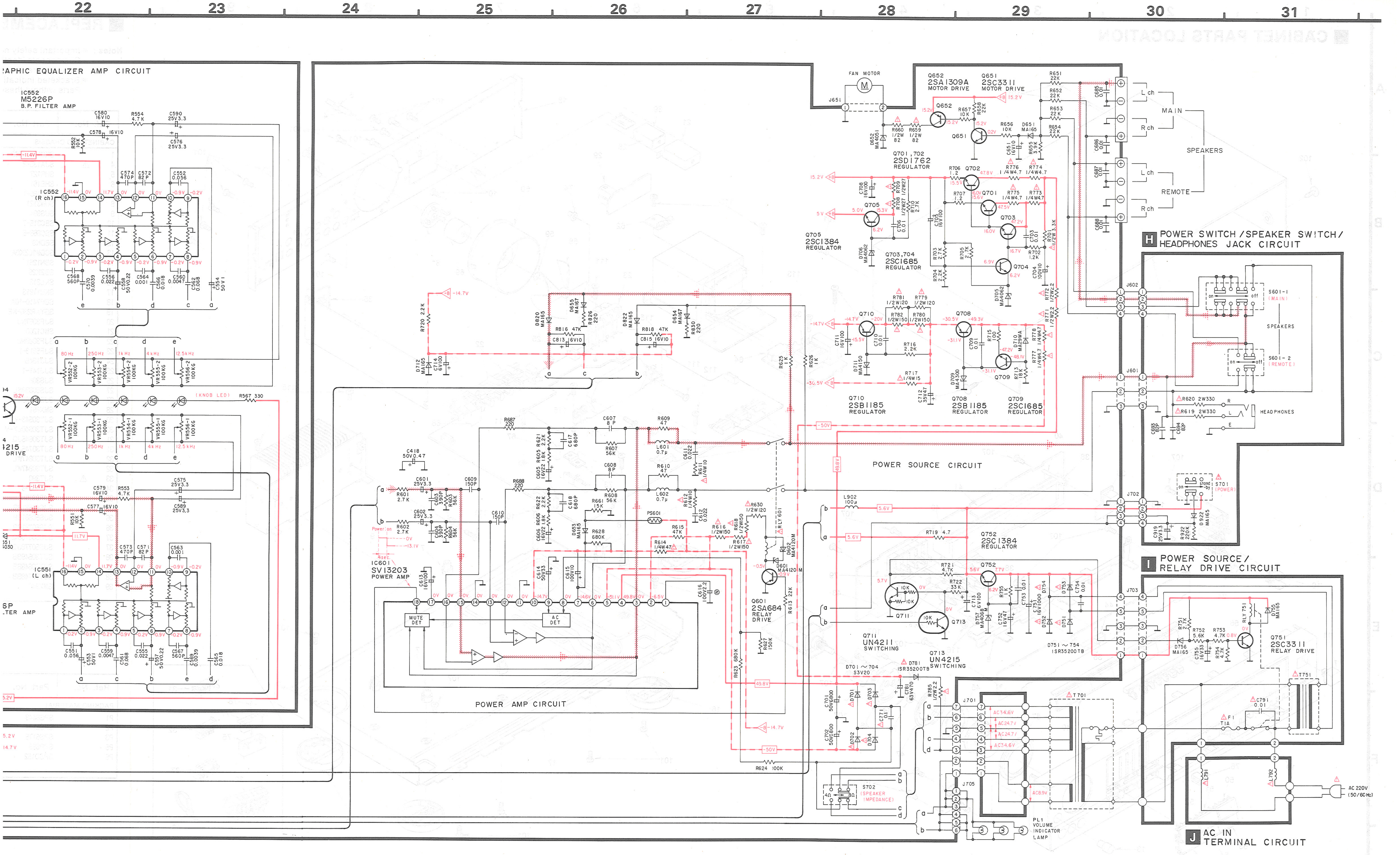
RANK (Color)	D914	D915	CENTER FREQUENCY
Black	○	×	10.65MHz
Red	×	×	10.70MHz
White	×	○	10.75MHz

Note: ○ mark: Diode is used.
× mark: Diode is not used.

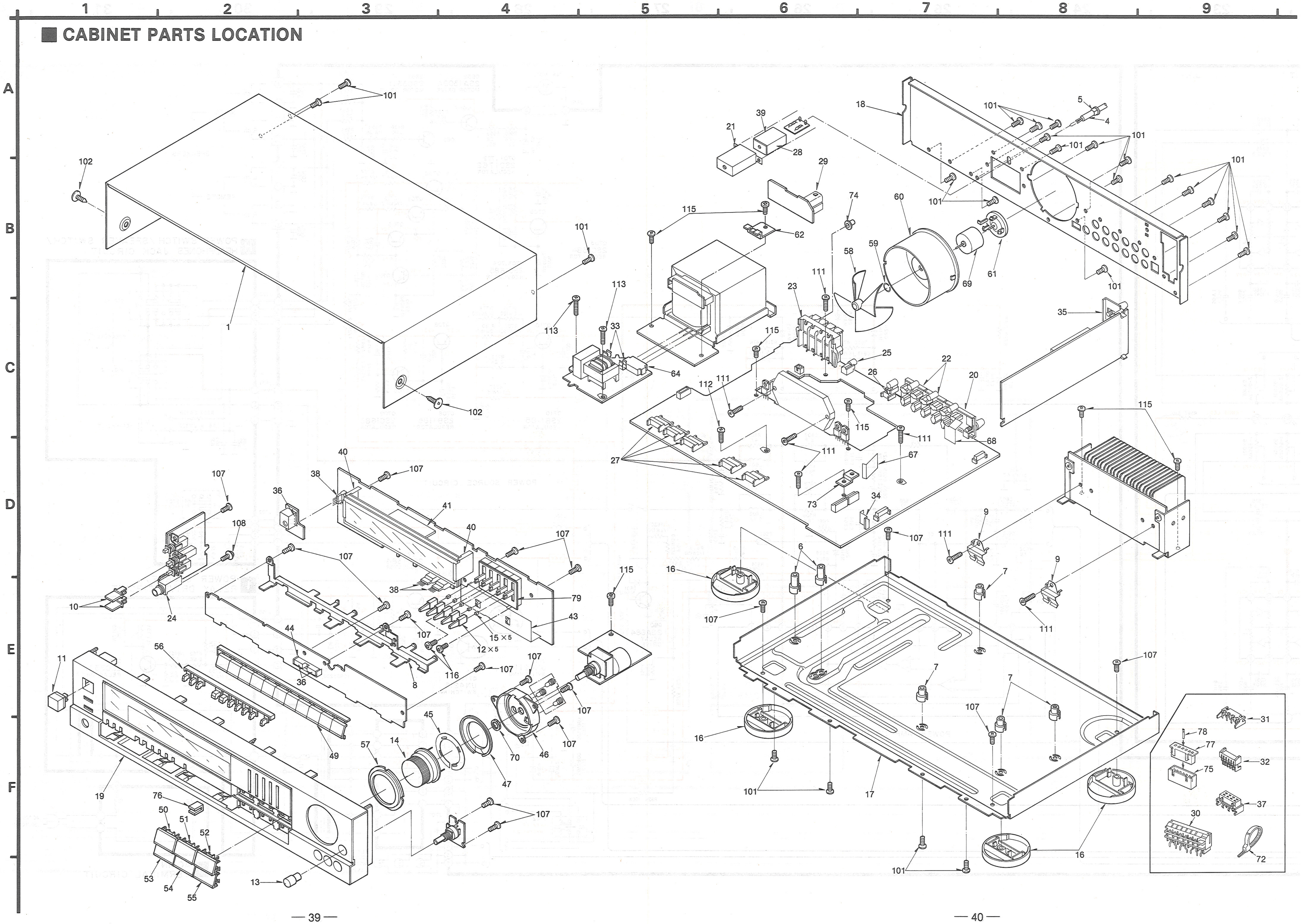

1
2
3
4
5
6
7
8
A
B
C
D
E
F
FM ANT. (75Ω)
FM signal
AM signal
AM ANT
AM LOOP ANT.
TN101 (FM FRONT END PACK) SNVFE337G01
2SK193 FM RF AMP
2SC2668 FM MIXER
2SC2669
2SC2995
FM OSC
FM IFT
Q201, 202 2SC2787 FM IF AMP
IC101 LM7001 PLL FREQUENCY SYNTHESIZER
IC201 AN7273A FM/AM IF AMP, DET & AM MIXER
Q204 2SC1740 FM/AM SELECTOR
IC301 AN7470 FM MPX
Separation adj
FM OSC
AM OSC
AM ANT coil
AM OSC coil
FM DET coil
FM off set voltage (0mV)
TP201
TP202
TP301
19kHz output
MPX VCO adj.
Q210 2SC1740 AM OSC BUFFER
Q101, 102 2SC2785 FM/AM LOOP FILTER
Q207 2SC1740 POWER SUPPLY (FM/AM)
Q208, 209 2SA933 POWER SUPPLY (FM/AM)
Q206 2SA933 SIGNAL DET.
Q205 2SC1740 SIGNAL DET.
AM/FM IF AMP
DET
AF AMP
AM MIX
MPX
PLL
A TUNER (FM/AM) CIRCUIT
B MAIN CIRCUIT
GND
PHONO
L ch
R ch
Phono signal
IC451 AN6558F PHONO EQ AMP
PHONO EQ AMP CIRCUIT
BUFFER AMP CIRCUIT
Q503, 504 2SK117 MUTING
IC501 AN6558F BUFFER AMP
Q506 UN4211 MUTING CONT.
Q505 UN4111 MUTING CONT.
Q513, 514 UN4211 MUTING CONTROL
IC402 AN6552F BUFFER AMP
IC401 TC9163N INPUT SELECTOR
INPUT SELECTOR CIRCUIT
CD
VCR 1 REC OUT
VCR 1 PLAYBACK
TAPE/VCR2 REC OUT
TAPE/VCR2 PLAYBACK
J202
SWITC


3
4
5
6
7
8
9
10
11
12
SNVFE337G01
FM RF AMP
2SC2668
FM MIXER
FM IFT
2SC2669
FM OSC
2SC2995
AM OSC coil
AM OSC
Q210
2SC1740
AM OSC BUFFER
Q101, 102
2SC2785
FM/AM LOOP FILTER
Q102
Q101
Q201
Q202
CF201
CF202
Q201, 202
2SC2787
FM IF AMP
IC101
LM7001
PLL FREQUENCY SYNTHESIZER
X101
7.2M
Xout
Xin
CE
CL
DATA
SYC
BO1
BO2
Vss
PD2
PD1
Vdd2
Vdd1
FM IN
AM IN
BO3
L101 0.47μ
L102 1.2μ
IC201
AN7273A
FM/AM IF AMP, DET & AM MIXER
AM/FM IF AMP
DET
AF AMP
AM MIX
FM off set voltage (0mV)
TP202
TP201
Z202
Q204
2SC1740
FM/AM SELECTOR
L324
Q204
FM DET coil
T201
T202
D204 MA165
Q208
Q207
Q207
2SC1740
POWER SUPPLY (FM/AM)
Q209
Q208, 209
2SA933
POWER SUPPLY (FM/AM)
Q206
Q205
D202 MA4110
Q206
2SA933
SIGNAL DET.
Q205
2SC1740
SIGNAL DET.
Separation adj
IC301
AN7470
FM MPX
VR302 500KB
MPX
PLL
TP301
19kHz output
VR301 5KB
MPX VCO adj
L321
L322
Q301
Q303
Q302
D206 MA165
Q301, 302
2SD1450
MUTING
Q303
2SA933
MUTING CONTROL
J202
J201
C
BALANCE VR CIRCUIT
(BALANCE)
VR502 100KG
J503
D
VOLUME/MOTOR DRIVE CIRCUIT
(VOLUME)
VR501-1 100KB
VR501-2
Q501
Q502
MOTOR
M
Q501, 502
2SJ40
MUTING
IC851
BA6218
MOTOR DRIVE
DIRECTION SELECTOR
DRIVE
L852
L851
R851 1/2W2.2
J501
J502
B
MAIN CIRCUIT
IC451
AN6558F
PHONO EQ AMP
PHONO EQ AMP CIRCUIT
BUFFER AMP CIRCUIT
Q503, 504
2SK117
MUTING
Q503
Q504
IC501
AN6558F
BUFFER AMP
Q510
2SJ40
SWITCHING
Q510
J901
REMOTE CONTROL (OUT)
J902
INPUT SELECTOR CIRCUIT
9163N
ST
CK
DA
Vss
Vdd
X8 X7 X6 X5 X4 X3 X2 X1
IC402
AN6552F
BUFFER AMP
Q506
UN4211
MUTING CONT.
Q505
UN4111
MUTING CONT.
Q506
Q505
Q514
Q513
Q513, 514
UN4211
MUTING CONTROL
IC502
LC4966
SWITCHING
IC502
Q509
Q508
Q507
Q509
UN4211
SWITCHING CONTROL
Q508
UN4111
SWITCHING CONTROL
Q507
UN4211
SWITCHING CONTROL
SWITCHING CONTROL CIRCUIT


13
14
15
16
17
18
19
20
21
22
E
FL METER DRIVE/GRAPHIC EQUALIZER AMP CIRCUIT
SYSTEM CONTROL CIRCUIT
GRAPHIC EQUALIZER AMP CIRCUIT
FL901 SADBG542GK
FL DISPLAY
Q953,955 UN4115 FL DRIVE (POWER LEVEL)
Q960,962 UN4213 FL DRIVE (POWER LEVEL)
D952,953,955,956 MA165
Z905 10K x 8
Z951 100K x 9
C915 50V100
Q965 Q966 Q967 Q968 Q969 Q970 Q971 Q972 Q973
IC951 BA6148 FL DRIVE
COMPARATOR
Q965 ~ 973 UN4115 FL DRIVE
IC902 AN90B70 INTERFACE
Q902 UN4215 SWITCHING
Q901 2SC1740 SWITCHING (REST)
IC901 LC6554H3682 MICRO COMPUTER
Z901 330P x 12
Z902 47K x 7
Z903 10K x 8
Z904 10K x 7
Q891 UN4113 SWITCHING (REMOTE)
Q892 UN4215 SWITCHING (REMOTE)
D901 ~ 905, 908 ~ 911 MA165
Q893 UN4215 SWITCHING
IC552 M5226P B.P. FILTER AMP
IC551 M5226P B.P. FILTER AMP
IC552 (R ch)
IC551 (L ch)
Q894 UN4215 LED DRIVE
80 Hz
250 Hz
1k Hz
4 kHz
12.5 kHz
VR552-2 100KG
VR553-2 100KG
VR554-2 100KG
VR555-2 100KG
VR556-2 100KG
VR552-1 100KG
VR553-1 100KG
VR554-1 100KG
VR555-1 100KG
VR556-1 100KG
F
OPERATION SWITCH CIRCUIT
S16 (down)
S17 (up)
S20 (select)
S19 (assort)
S18 (change)
S22 (loudness)
S13 (FM)
S14 (AM)
S12 (FM mode)
S9 (9)
S10 (0)
S21 (memo)
S11 (M. scan)
S27 (TAPE/VCR2)
S26 (VCR1)
S5 (5)
S6 (6)
S7 (7)
S8 (8)
S1 (1)
S2 (2)
S3 (3)
S4 (4)
S23 (PHONO)
S24 (TUNER)
S25 (CD)
G
LED/ REMOTE SENSOR CIRCUIT
Z891
D892 LN846RP-LS (STANDBY IND.)
REMOTE CONTROL (TAPE)
J901
J902
J903
J904
J905
J906
J907
J908
L892 100μ
L893 100μ
CF901 4MHz
10V/1ms. div.
2V/1ms. div.
KEY ON
loudness on
AF MODE
Standby
Stereo
Relay
Start
-30.5V
-14.7V
15.2V
-11.4V
11.7V
5.6V
4.6V


22
23
24
25
26
27
28
29
30
31
APHIC EQUALIZER AMP CIRCUIT
IC552
M5226P
B.P. FILTER AMP
IC552 (R ch)
IC551 (L ch)
VR552-2 100KG
VR553-2 100KG
VR554-2 100KG
VR555-2 100KG
VR556-2 100KG
80 Hz
250 Hz
1k Hz
4k Hz
12.5k Hz
(KNOB LED)
R567 330
215
DRIVE
FAN MOTOR
J651
Q652
2SA1309A
MOTOR DRIVE
Q651
2SC3311
MOTOR DRIVE
Q701, 702
2SD1762
REGULATOR
Q705
2SC1384
REGULATOR
Q703, 704
2SC1685
REGULATOR
Q710
2SB1185
REGULATOR
Q708
2SB1185
REGULATOR
Q709
2SC1685
REGULATOR
MAIN
L ch
R ch
SPEAKERS
REMOTE
H POWER SWITCH / SPEAKER SWITCH / HEADPHONES JACK CIRCUIT
J602
J601
S601-1 (MAIN)
S601-2 (REMOTE)
SPEAKERS
HEADPHONES
R620 2W330
R619 2W330
POWER SOURCE CIRCUIT
IC601
SV13203
POWER AMP
MUTE DET
AC DET
POWER AMP CIRCUIT
Q601
2SA684
RELAY DRIVE
RLY 601
L601 0.7μ
L602 0.7μ
PS601
L902 100μ
J702
S701 (POWER)
Q752
2SC1384
REGULATOR
I POWER SOURCE / RELAY DRIVE CIRCUIT
J703
Q711
UN4211
SWITCHING
Q713
UN4215
SWITCHING
D701 ~ 704
S3V20
D751 ~ 754
1SR35200TB
D781
1SR35200TB
Q751
2SC3311
RELAY DRIVE
RLY 751
J701
J705
T701
T751
F1
T1A
C791 0.01
S702 (SPEAKER IMPEDANCE)
4Ω
8Ω
PL1
VOLUME INDICATOR LAMP
L791
L792
AC 220V (50/60Hz)
J AC IN TERMINAL CIRCUIT
AC14.6V
AC24.7V
AC24.7V
AC14.6V
AC89V
15.2V
5V
-14.7V
-30.5V
-50V
49.8V
5.6V
5.6V

CABINET PARTS LOCATION


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
101
102
1
102
101
113
113
33
64
115
115
62
21
39
28
29
74
58
59
60
61
69
18
101
5
4
101
101
101
101
101
101
111
23
115
25
26
22
20
68
35
112
111
115
111
111
67
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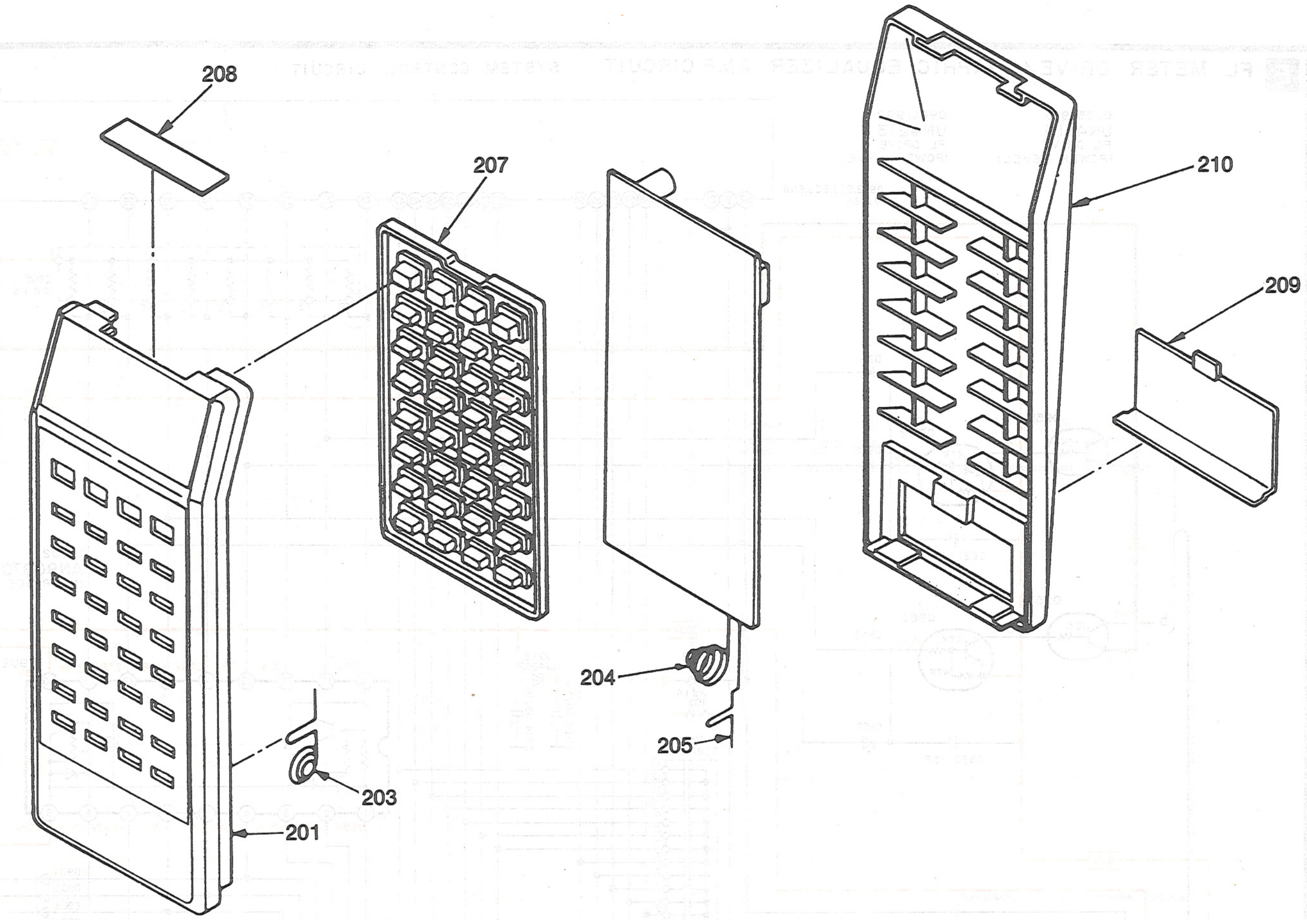
REPLACEMENT PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Description
CABINET AND CHASSIS		
1	SKC1741K993	CABINET BODY
4 ⚠	SJA138-3	POWER CORD
5	SHR127	SPACER, POWER CORD
6	SHE181	HOLDER
7	SHE185-1	HOLDER
8	SUW3121	BRACKET
9	SUS894	BRACKET(SPRING)
10	SBC315-7	BUTTON
11	SBC666-5	BUTTON
12	SBDK9	KNOB
13	SBDM10ZK0A	KNOB
14	SBN1251	KNOB
15	SBZK29	SPACER(KNOB)
16	SKL313	FOOT
17	SKU11813	BOTTOM BOARD
18	SGP7410-10A	REAR PANEL
19	SGYAR230-KE	PANEL
20	SJF3067NJ	TERMINAL BOARD
21	SMC1200	SHIELD COVER
22	SJF3069NJ	TERMINAL BOARD
23	SJF5813-1	TERMINAL BOARD
24	SJJ134B	JACK
25	SJJ141-1	M3 JACK
26	SJS306	REMOTE CONTROL CONNECTOR
27	SJS50880WL	SOCKET(8P)
27	SJS50980WL	SOCKET(9P)
28	SMX891	SHIELD SPACER
30	SJT30543-V	CONNECTOR(5P)
30	SJT30640LX-V	CONNECTOR(6P)
31	SJT30645JQ	CONNECTOR(6P)
31	SJT30745JQ	CONNECTOR(7P)
32	SJT30847WL	CONNECTOR(8P)
32	SJT30947WL	CONNECTOR (9P)
33 ⚠	SJT390	FUSE HOLDER
34	SME103-5	SHIELD PLATE
35	SJF8305N	TERMINAL BOARD
36	SJS50581BB	SOCKET(5P)
36	SJS50681BB	SOCKET(6P)
36	SJS50781BB	SOCKET(7P)
37	SJS50678JQ	SOCKET(6P)
37	SJS50778JQ	SOCKET(7P)
38	SJT30549BB	CONNECTOR(5P)
38	SJT30648BB	CONNECTOR(6P)
38	SJT30748BB	CONNECTOR(7P)
39	SMX940	SHIELD PLATE
40	SUW3122	BRACKET
41	SUW3123	BRACKET
43	SMC6465	SHIELD PLATE
44	SMC6466	SHIELD PLATE
45	SHR6080	SMOKE PLATE
46	SDH571	VOLUME ORNAMENT
47	SDL101	SPACER
49	SBC1033A	BUTTON
50	SBC1034A	BUTTON
51	SBC1034B	BUTTON
52	SBC1034C	BUTTON
53	SBC1035	BUTTON
54	SBC1035D	BUTTON
55	SBC1035B	BUTTON
56	SBC1036	BUTTON
57	SGL265-1	INDICATION PLATE
58	SHE232	FAN
59	SUS271	SPRING
60	SHE233-1	FAN CASE
61	SHE234	CAP
62	SUW3132	BRACKET
64	SJS305-1	PT SOCKET
67	SMC1009	SHIELD PLATE
68	SMC6471	SHIELD PLATE
69	MDN-4RB4MXA	MOTOR
70	XNS7	NUT
72	SHR328	LEAD WIRE CLAMPER
73	SUW3128	BRACKET
74	SBC165	BUTTON, IMPEDANCE
75	SJT3213	CONNECTOR(2P)
75	SJT3611	CONNECTOR(6P)
76	SHR9866	SPACER
77	SJS5215	SOCKET(2P)
77	SJS5629	SOCKET(6P)
78	SJT783	CONTACT
79	SHR5354-1	ORNAMENT
SCREWS.WASHERS AND NUTS		
101	XTBS3+8JFZ1	SCREW
102	SNE2129-3	SCREW
107	XTB3+8G	SCREW
108	XTW3+8T	SCREW
111	XTB3+16JFZ	SCREW
112	XTBS3+16F1	SCREW
113	XTB3+20JFZ	SCREW
115	XTB3+8JFZ	SCREW
116	XSN2+2FZ	SCREW

Ref. No.	Part No.	Description
PACKING MATERIAL		
P1	SPG6443	CARTON BOX
P2	SPS5174	PAD
P3	SPS5175	PAD
P5	SPP699	POLYETHYLENE SHEET
P6	SPSD152	ACCESSORY BOX
ACCESSORIES		
A2	SSA270M	FM ANTENNA
A3	SQF13358	INSTRUCTION BOOK
A4	SWKST11M-1	CORD (REMOTE CONTROL)
A5	SPB1162T	AM LOOP ANTENNA
A6	UM-4NE	BATTERY
A7	SJP2257T	CORD

REMOTE-CONTROL PARTS LOCATION



REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description
REMOTE CONTROL ASS'Y		
RC1	EUR64758	REMOTE CONTROLL
REMOTE CONTROLL		
INTEGRATED CIRCUITS		
IC1	M50467018FP	I.C.MICRO COMPUTER
TRANSISTORS		
Q1	UN1231	TRANSISTOR
DIODES		
D1	LN66-S	L.E.D
D2	MA154WK	DIODE
D3	MA154WK	DIODE
COIL		
L1	ELEA101JA	COIL
OSCILLATOR		
X1	CSB420PB1	OSCILLATOR
RESISTORS		
R1	ERDS2TJ1R0	CARBON, 1Ω, 1/4W
CAPACITORS		
C1	ECKD1H471KB	CERAMIC, 470PF, 50V
C2	ECKD1H121KB	CERAMIC, 120PF, 50V
C3	ECEA0GK101	ELECTROLYTIC, 100μF, 4V
MECHANISM PARTS		
201	UR64VCS606	UPPER CABINET
203	UR64TD374	BATTERY TERMINAL(COMMON)
204	UR64TD809	TERMINAL(−)
205	UR64TD808	TERMINAL(+)
207	UR64CT805	RUBBER (SWITCH)
208	UR52SB327	PLATE(SMOKE)
209	UR64EC804	BATTERY COVER
210	UR64CS803A	LOWER CABINET

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